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Editorials

CHICAGO THE MEDICAL CENTER OF THE WORLD

Organized medicine in Chicago has the opportunity of a lifetime at hand. If taken by the proverbial forelock the city can be made the medical center of the world.

Work qualifying the city and its environs for this distinction is performed hourly all about us. Neglect to let others know of our capacities and performances will result in Chicago's slipping into a mere sub-station for outlying physicians to come for post graduate labors. Instead of being the medical center of the world, Chicago will soon cease to be even a rival for this supremacy in the United States, unless some action is taken.

Organized medicine in Cook County should assume the responsibility of cooperation and organization between the profession, the schools and hospitals and affiliated institutions to the end that the choate unit will be a forceful lever to bring about the "rendering unto Caesar of the things that are Caesar's."

Chicago should be the logical city for visiting physicians to come for supplemental study. The population is large. The city is beautiful.

There are four large medical schools with a wonderfully competent and efficient teaching staff. Here are all the ingredients. What is needed is the mortar and pestle to mix them.

A central office or clearing house can be maintained in Chicago where notices can be received and bulletined showing where clinics are being held, the work that is being done in colleges, hospitals and private clinics. This central bureau could advertise in national and other medical journals in this way getting the widest publicity possible as to what is being done in the world's medical center.

Cooperation from the institutions and the individuals, if organized and distributed prop-

erly, will go far towards placing Chicago at the head as a teaching center.

Another progressive step would be the organization of the professional labor done in Chicago so that our own members would have opened to them diagnostic and treatment clinics as well as especial clinics. In this way our own membership will make themselves more efficient physicians and surgeons.

This when analyzed would appear to be indubitably the inevitable and only way in which to overcome the propaganda of various cults and isms, and the so-called practitioners of bloodless surgery and medicine.

Along with post graduated work there would run a bi-monthly diagnostic clinic held on the south, the west and the north sides of Chicago under the auspices of the Chicago Medical Society. Our members would gain greatly therefrom.

These views are expressed for the purpose of creating discussion with the possibility in view that good may arise therefrom. Will those who are interested in the idea please place themselves on record by comment either favorable or otherwise?

It rests with the organized profession in cooperation with our universities, schools, hospitals and teaching institutions generally to put this great undertaking where it belongs on a plane of established success that will make Chicago a medical center and admiration for the whole world.

EXHIBITS AT THE 1930 ANNUAL MEETING

An interesting feature of the annual meeting is the large display of exhibits submitted by many reliable commercial concerns who have something to sell that the physician is interested in. During the past few years the Society has taken pride in the selection of these exhibits, permitting only ethical concerns to be represented at the meeting.

It is always a part of the general arrangements to arrange things suitable to the best interests of the exhibitor. Although it is not possible to give the choicest space to all exhibitors, the best possible arrangement to make each exhibit space a desirable one is attempted. A synopsis of all exhibits is given in the April and May issues of the ILLINOIS MEDICAL JOURNAL, and the same is placed in the official program for the meeting, without additional charge to our exhibitors.

We are well pleased with the general arrangement of the exhibit hall this year, for the Joliet meeting, and the diagram of exhibit spaces is printed in this issue of the JOURNAL. The response to the first diagrams sent out this year were beyond expectations, and it is quite evident that all available spaces will be sold long before the meeting is held in May. We hope that all physicians who attend the annual meeting in Joliet will spend as much time as possible among the exhibits, to familiarize themselves with the many accessories of interest to the profession.

Any ethical prospective exhibitors interested in having a display at the Joliet meeting may procure a diagram, application and complete information on the subject by addressing the Secretary, Dr. Harold M. Camp, Monmouth, Illinois. It is hoped that all members of the Illinois State Medical Society will favor the exhibitors and also our advertisers, many of whom have favored the Society with their advertisements for many years.

FIRMS WISHING TO EXHIBIT AT ILLINOIS STATE MEDICAL SOCIETY

EIGHTEENTH ANNUAL SESSION

Joliet, Illinois, May 20, 21, 22, 1930

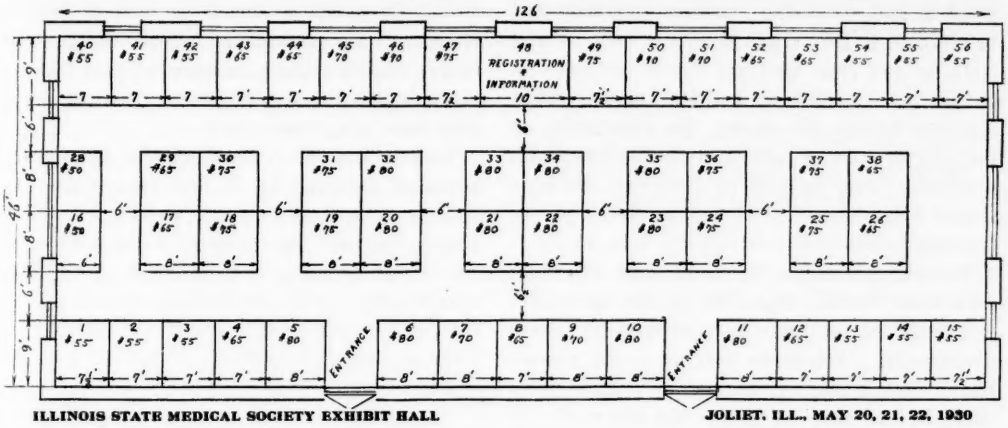
CHAMBER OF COMMERCE

APPLICATION FOR SPACE IN THE EXHIBIT HALL

Dr. Harold M. Camp, Secretary,
Monmouth, Illinois.

You are hereby authorized to reserve for our use space in Exhibit Hall at the Joliet Session, 1930:

Our First Choice is Space No....at....$....
Our Second Choice is Space No.....at....$....
Our Third Choice is Space No....at....$....
Our Fourth Choice is Space No....at....$....
.....agree to pay 50 percent of the charge for space within ten days from date of acknowledgment of reservation and the remaining 50 percent on or before the first day of May 1930.
.....agree to abide by all requirements and restrictions mentioned in this application.



ILLINOIS STATE MEDICAL SOCIETY EXHIBIT HALL JOLIET, ILL., MAY 20, 21, 22, 1930

REGULATIONS REGARDING EXHIBITS

In making application, please state by number, from the diagram, your first, second, third and fourth choice. Retain one diagram for reference.

All exhibits must be in place before Monday night, May 19th, and remain all of May 22nd. The exhibit room will be open on Tuesday, Wednesday and Thursday from 8 a. m. to 6 p. m. The Illinois State Medical Society will not guarantee exhibitors against loss of any kind. The Society does agree, however, to furnish a watchman at night as an aid to its exhibitors.

All firms making an exhibition will be mentioned, with a brief outline of exhibit, in the provisional program to be published in the ILLINOIS MEDICAL JOURNAL for April and May and also in the official program used at the session.

Both 110 and 220 volts of electric current are available for every booth. Tables and chairs will be available. Extra furnishings, rugs, lamps, etc., can be rented at a nominal rental.

No nails, screws or tacks shall be driven in the floor or walls. No bunting, paper or inflammable woodwork shall be placed against the wall or suspended from the booths. The floor shall be fully protected from the dropping of oil or other fluid.

No drug, chemical or similar preparaton used in the treatment of disease can be exhibited which does not conform to the requirements of the Council of the Illinois State Medical Society.

No medical journal or publication can be exhibited that contains advertisements of drugs, chemicals or similar preparations used in the treatment of disease which does not conform to the rules of the Council of the Illinois State Medical Society.

No sub-letting of space will be permitted. Any person or firm sub-letting space, as well as the one purchasing such space, will be subject to eviction. No refund will be made for space ordered and once accepted.

We believe we have more to offer our exhibitors at this meeting than ever before in the history of this Society. The Joliet Chamber of Commerce is cooperating 100 per cent and will aid exhibitors in every way possible.

IS THE COST OF HOSPITALIZATION REALLY THE HIGH COST OF HOSPITALIZATION?

A statistical report submitted recently states that on a survey made in 100 hospitals the average bill for the "first ten thousand full pay patients during the present fiscal year was $71.99; that the average duration of stay per patient in fifty-two of these hospitals was 11.04 days."

Anybody accustomed paying household bills knows that from these figures the high cost of hospitalization quickly range itself with the general high cost of living, and the improved standard of living that have made the American people determined that since this is a race of kings the best is only about half good enough. Compared with what the population of the United States pays out annually for such pleasant but unnecessary luxuries as silk stockings, superexpensive habiliments, superexpensive household and business accessories, automobiles, radios, pianos and other elegancies of modern life, the price asked for the hospital's aid in saving life and preventing pain is far less than that asked for filling life with "whoopee" or making it pleasant.

It is nothing at all for many a family of the middle class to spend from $40 to $50 making "whoopee" at a night club. When it comes to paying $40 or $50 to a doctor or to a hospital immediately the howl goes up. The trouble is to some extent that persons seems to take for

granted that wonderful machine the body and to expect it to keep itself in repair. Shelter and clothing and even food are less of an essential to life than a body in healthy working order. No man expects his tractor, his automobile, or his electric milking devices to be automatic self-repairers. They do seem to think that the body should take care of itself and to resent paying for expert care.

Medical care in the minds of many otherwise sane individuals is regarded in the light of a gift from heaven and the generosity of divine dispensation. When the hospital in its modern phase first began to function a private room could be had at from $25 to $35 per week and a special nurse on twenty-four hour duty for $25 per week. The public has expected hospitals to keep up this scale in the face of the more than doubled increase in the cost of labor, supplies, upkeep. Hotels and inns all over the country have raised their rates to preposterous heights. The public swallows the charge and lets it go, with the idea that after all the French phrase for hospital—"Hotel Dieu"—is really the right idea. This "hotel of God" can keep on living and going on Divine afflatus.

STATE MEDICINE COMING? NECESSARY RAW MATERIALS FOR A VAST SYSTEM OF STATE MEDICINE OR ITS EQUIVALENT ARE TODAY LYING ABOUT US

Glenn Frank, president of the University of Wisconsin, in the *Chicago Daily News,* November 14, 1929, says:

Recently I had the privilege of discussing, before some 3,000 members of the American College of Surgeons, the threat of state medicine or its equivalent in the corporate medical activities of industries, insurance companies and the like.

I tried to face, with complete candor, the powerful private economic interests that are driving industries and insurance companies and the increasingly enlightened leadership of labor to wage organized warfare upon the staggering economic loss they must bear from preventable disease and postponable death.

It is undoubtedly true that all of the necessary raw materials for vast system of state medicine or its equivalent are today lying about us.

Will these raw materials be used to build a system of state medicine or will the medical profession display enough statesmanship to take the leadership in meeting the needs that will otherwise force state medicine?

Here is a question that calls for sincere and sustained thinking by doctors everywhere.

As a general principle I dislike to see any activity fall into the hands of the government—whether it be an activity of business or labor or agriculture or the professions—if such activity can be administered equally well or better by the trade or profession to which the activity logically belongs.

Society forever faces the dilemma of choice between an inner and an outer control of its fundamental services.

I prefer inner control, not because I am a reactionary who grows hydrophobic at the mere suggestion of government control, for I have rarely been accused of that, but because, as society becomes increasingly complex and technical, the man on the job should be better equipped for the job than the man on the sidelines. It is, I think, an intelligently progressive policy to say that we shall consider government control of any given fundamental service only when inner control breaks down.

State medicine will not come, in my judgment, if doctors generally display in the years ahead adequate sensitiveness to social values and adequate statesmanship in meeting social needs which, in matters of disease and death, now present such a serious problem to individual workers, to industries, to insurance companies and the like.

The doctors must excel industries, insurance companies and governments in their zeal for preventive medicine; they must humanize the science of the study of disease, linking the learning of the laboratory ever more closely to the life of mankind.

President Frank's address is published in full in "Surgery, Gynecology and Obstetrics," January, 1930.

WE TOLD YOU SO TWENTY YEARS AGO

In the issue of the ILLINOIS MEDICAL JOURNAL for September, 1911, the present editor prophesied the development of the present economic conditions confronting the profession.

This prophecy was repeated again in 1913, 1914, 1915 and reiterated again and again in public lectures and in editorials in the interval up to the present day. Medical journals all over the United States are now enlisting in this same fight for those rights of the medical profession that so drastically affect the public welfare. Foundations practicing medicine, corporations entering into the practice, also, university medical schools competing in practice with their own alumni, endowed and partly endowed institutions and pay clinics in the practice of medicine, and an adaptation of the "chain store idea" in medical practice and in hospitalization, lay dictation of medical practice, legislative fiat in the practice of medicine, overstandardization and too much centralization of power in Washington, in state capitals and other general governmental units, all these and hundreds of other similar menaces today occupy much editorial attention.

THE NEW SHEPPARD-TOWNER PROPOSED LEGISLATION IS KNOWN AS THE JONES-COOPER BILL

April 18, 1929, S. 255, was introduced by Senator Jones of Washington and referred to the senate committee on Commerce, and H. R. 1195 was introduced by Mr. Cooper of Ohio and referred to the house committee on Interstate and Foreign Commerce.

The essential features of the Jones-Cooper Bill are the same as those of the original Sheppard-Towner Act. It provides for a $1,000,000 annual appropriation, to be administered by the Children's Bureau and expended in states which match on a 50-50 basis the federal funds available. Points of difference are no outright grants to states of $5,000; $15,000 reserved for the use of each state (which may accept the whole or any part).

All the objections to the old Sheppard-Towner Act apply with equal force to the Jones-Cooper Bill. We will be pleased to furnish literature on request.

The Illinois State Medical Society has from the first consistently opposed the Sheppard-Towner Act and similar menacing legislation.

Write your congressman to aid in the defeat of the Jones-Cooper Bill. Here is a vast field for activities on the part of the Woman's Auxiliaries of the various state and local medical societies.

NEW LEGISLATION IS CONTEMPLATED FOR THE RESURRECTION OF THE SHEPPARD-TOWNER ACT

Those who are familiar with the deceptions and wolf in sheep's clothing attributes of the Sheppard-Towner Act that died in July 29, 1929, will be horrified that new legislation is contemplated that will again place this iniquitous burden on the backs of the taxpayers for the benefit of political jobholders, which if it is like its predecessors will not provide a single cent to buy a meal, or a shirt or rent a bed or shelter for a single needy mother or newborn child.

In the *United States Daily* under date of Jan. 10, 1930, appears this news story:

"After a conference with President Hoover at the White House on Jan. 9, Representative Cooper (Rep.), of Youngstown, Ohio, stated orally that he would introduce a bill in the House continuing the purposes of the Sheppard-Towner Maternity and Infancy Act along the lines of President Hoover's recommendation in his annual message to Congress, which was to confine the use of Federal funds under the act by the States to the building up of county or other local health units.

"Representative Cooper said he now has a bill pending in Congress to continue the purposes of the Sheppard-Towner Act, but added that as a result of his conference with the President he would offer a substitute bill not only continuing the purposes of the act but providing for the distribution of Federal funds by the Children's Bureau of the Department of Labor to the county boards of health.

" 'There is tremendous interest all over the country in the legislation,' said Representative Cooper, 'but there is likewise considerable opposition to it.' "

For those unacquainted with the attitude of the national administration towards both worthy and unworthy national welfare work, the best elucidation of these policies can be found in these excerpts from the president's annual mes-

sage to congress that were culled from this message by the A. M. A. itself.

Some of these citations are:

THE PRESIDENT'S MESSAGE

SOCIAL SERVICE GIVEN IN PATERNALISTIC WAY

The federal government provides for an extensive and valuable program of constructive social service, in eduaction, home building, protection to women and children, employment, public health, recreation and many other directions.

In a broad sense federal activity in these directions has been confined to research and dissemination of information and experience, and at most to temporary subsidies to the states in order to secure uniform advancement in practice and methods. Any other attitude by the federal government will undermine one of the most precious possessions of the American people; that is, local and individual responsibility. We should adhere to this policy.

Federal officials can, however, make a further and most important contribution by leadership in stimulation of the community and voluntary agencies, and by extending federal assistance in organization of these forces and bringing about cooperation among them.

CONFERENCE ON CHILD HEALTH

As an instance of this character, I have recently, in cooperation with the Secretaries of Interior and Labor, laid the foundations of an exhaustive inquiry into the facts precedent to a nation-wide white house conference on child health and protection. This cooperative movement among interested agencies will impose no expense upon the government. Similar nation-wide conferences will be called in connection with better housing and recreation at a later date.

In view of the considerable difference of opinion as to the policies which should be pursued by the federal government with respect to education, I have appointed a committee representative of the important educational associations and others to investigate and present recommendations. In cooperation with the Secretary of the Interior, I have also appointed a voluntary committee of distinguished membership to assist in a nation-wide movement for abolition of illiteracy.

I have recommended additional appropriations for the federal employment service in order that it may more fully cover its cooperative work with state and local services. I have also recommended additional appropriations for the women's and children's bureaus for much-needed research as to facts which I feel will prove most helpful.

PUBLIC HEALTH DEMANDS AID OF ALL AGENCIES

The advance in scientific discovery as to disease and health imposes new considerations upon us. The nation as a whole is vitally interested in the health of all the people; in protection from spread of contagious disease; in the relation of physical and mental disabilities to criminality, and in the economic and moral advancement which is fundamentally associated with sound body and mind.

The organization of preventive measures and health education in its personal application is the province of public health service. Such organization should be as universal as public education. Its support is a proper burden upon the taxpayer. It cannot be organized with success, either in its sanitary or educational phases, except under public authority. It should be based upon local and state responsibility, but I consider that the federal government has an obligation of contribution to the establishment of such agencies.

In the practical working out of organization, exhaustive experiment and trial have demonstrated that the base should be competent organization of the municipality, county, or other local unit. Most of our municipalities and some 400 rural counties out of 3,000 now have some such unit organization. Where highly developed, a health unit comprises at least a physician, sanitary engineer and community nurse with the addition in some cases, of another nurse devoted to the problems of maternity and children. Such organization gives at once a fundamental control of preventive measures and assists in community instruction.

GOVERNMENT LENDS HELPING HAND

The federal government, through its interest in control of contagion, acting through the United States Public Health Service and the state agencies, has in the past and should in the future concern itself with this development, particularly in the many rural sections which are unfortunately far behind in progress. Some parts of the funds contributed under the Sheppard-Towner Act through the Children's Bureau of the Department of Labor have also found their way into these channels.

I recommend to the Congress that the purpose of the Sheppard-Towner Act should be continued through the Children's Bureau for a limited period of years, and that the Congress should consider the desirability of confining the use of federal funds by the states to the building up of such country or other local units, and that such outlay should be positively coordinated with the funds expended through the United States Public Health Service directed to other phases of the same county or other local unit organization. All funds appropriated should of course be applied through the states, so that the public health program of the county or local unit will be efficiently coordinated with that of the whole state.

SINGLE AGENCY IS URGED FOR CARE OF WAR VETERANS

It has been the policy of our government almost from its inception to make provision for the men who have been disabled in defense of our country. This policy should be maintained. Originally it took the form of land grants and pensions. This system continued until our entry in the World War. The Congress at that time inaugurated a new plan of compensation, rehabilitation, hospitalization, medical care and treatment, and insurance, whereby benefits were awarded to those

veterans and immediate dependents whose disabilities were attributable to their war service. The basic principle in this legislation is sound.

In a desire to eliminate all possibilities of injustice due to difficulties in establishing service connection of disabilities, these principles have been to some degree extended. Veterans whose diseases or injuries have become apparent within a brief period after the war are receiving compensation; insurance benefits have been liberalized. Emergency officers are receiving additional benefits.

HOSPITALS OPEN TO ALL VETERANS

The doors of the government's hospitals have been opened to all veterans, even though their diseases or injuries were not the result of their war service. In addition adjusted service certificates have been issued to 3,433,300 veterans. This in itself will mean an expenditure of nearly $3,500,000,000 before 1945, in addition to the $600,000,000 which we are now appropriating annually for our veterans' relief.

The administration of all laws concerning the veterans and their dependents has been on the basis of dealing generously, humanely and justly. While some inequalities have arisen, substantial and adequate care has been given and justice administered. Further improvement in administration may require some amendment from time to time to the law, but care should be taken to see that such changes conform to the basic principles of the legislation.

I am convinced that we will gain in efficiency, economy, and more uniform administration and better definition of national policies if the Pension Bureau, the National Home for Volunteer Soldiers and the Veterans' Bureau are brought together under a single agency. The total appropriations to these agencies now exceed $800,000 per annum.

DEPARTMENTAL REORGANIZATION

This subject has been under consideration for more than twenty years. It was promised by both political parties in the recent campaign. It has been repeatedly examined by committees and commissions—congressional, executive and voluntary. The conclusions of these investigations have been unanimous that reorganization is a necessity of sound administration; of economy; of more effective governmental policies and of relief to the citizen from unnecessary harassment in his relations with a multitude of scattered governmental agencies. . . .

TWO PRINCIPLES ESSENTIAL

It seems to me that the essential principles of reorganization are two in number. First, all administrative activities of the same major purpose should be placed in groups under single-headed responsibility; second, all executive and administrative functions should be separated from boards and commissions and placed under individual responsibility, while quasi-legislative and quasi-judicial and broadly advisory functions should be removed from individual authority and assigned to boards and commissions. Indeed, these are the fundamental principles on which our government was founded, and they are the principles which have been adhered to in the whole development of our business structure, and they are the distillation of the common sense of generations.

For instance, the conservation of national resources is spread among eight agencies in five departments. They suffer from conflict and overlap. There is no proper development and adherence to broad national policies and no central point where the searchlight of public opinion may concentrate itself.

FUNCTIONS SHOULD BE GROUPED

These functions should be grouped under the direction of some such official as an assistant secretary of conservation. The particular department or cabinet officer under which such a group should be placed is of secondary importance to the need of concentration. The same may be said of educational services, of merchant marine aids, of public works, of public health, of veterans' services, and many others, the component parts of which are widely scattered in the various departments and independent agencies. It is desirable that we first have experience with these different groups in action before we create new departments. These may be necessary later on.

AS MATERNAL MORTALITY STATISTICS MEAN ONE THING IN ONE COUNTRY AND ONE THING IN ANOTHER, HOW CAN ACCURATE COMPARISON BE MADE?

If Uniform Unit of the Measure of Comparison Existed United States Would Not for an Instant Be Considered to Rank in the Fifteenth or Seventeenth Place as Sheppard-Towner Propagandists Contend

Most exhaustive and widely diffused research made by the Illinois Medical Journal fails to disclose a single honest or accurate basis for international maternal mortality statistical comparison

A prime absurdity in the propaganda being sent out by socialistic uplifters and proponents for the Sheppard-Towner-Newton et al maternity legislation is the statement that the United States' rank among the nations on low maternal mortality is fifteenth or seventeenth. This is not true. It has never been proven and it cannot ever be proven until there is found some greatest common denominator of census taking whereby statistics submitted for comparison have

all been secured, arranged and classified and computed by the same yardstick or rule of thumb.

At present there is a complete lack of uniformity in the method of gathering maternal mortality statistics or any other statistics. Naturally, then, death rates in different countries cannot be compared with the slightest degree of accuracy.

Now, since 1915, no trustworthy statistics have been available from Russia and the state sanctioned practice of abortion there is a factor that does not enter into the death rates of any nation. Italy offers no information as to how statistics are collected there. And between the United States and England the methods of census taking differ radically. The United States Census Bureau uses the blanket term of "puerperal state."

This means a death during pregnancy, confinement or period of nursing, or a death occurring within three months of the cessation of any of these three functions. In Great Britain, so keenly are the differential distinctions and classifications drawn, that there can be no possible comparison with statistics as set up by the United States. The A. M. A., recognizing this impossibility of scientific comparison of the death rates of nations, made a chart and posted it at the Atlantic City, N. J., convention of that body some years ago. The chart was captioned "International Incomparability of Mortality Statistics." The Massachusetts Medical Society in 1921 issued a statement deploring the receptiveness with which medical writers almost universally express and maintain an inferiority complex towards the obstetrical situation in the United States by a sheeplike acceptance of foreign statistics that have been culled under conditions far removed and actually incomparable with conditions for census taking in the United States.

If the truth were known probably there would be shown a more favorable mortality death rate in the United States than in any other country.

That this contention is recognized quite generally would appear from these excerpts from both scientific and governmental authorities.

From proceedings of the House of Delegates, American Medical Association, 1924:

Resolution on lack of uniformity in reporting deaths in the puerperal state.

Dr. Charles E. Mongan, Massachusetts, introduced the following resolution which was referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, There is a lack of uniformity among the several states of the United States in reporting deaths in the puerperal state; and,

WHEREAS, This lack of uniformity has placed the United States' death rates in the puerperal state in an unfavorable position; be it

Resolved, The House of Delegates of the American Medical Association in session June 9, 1924, memorialize the Director of the Census Bureau to the end that the Director of the Census Bureau request the several states of the United States to follow the method under the International Classification in Diseases adopted by the Registrar General of England and Wales in reporting mortality rates in the puerperal state.

Report of Reference Committee on Hygiene and Public Health:

(3) Your Committee has considered the resolution presented by Dr. Charles E. Mongan on behalf of the section on Obstetrics, Gynecology and Abdominal Surgery of the Massachusetts Medical Society, which has for its object the securing of greater uniformity and clarity in the recording and analyzing of statistics of death incidental to childbirth. Your Committee respectfully recommends that this resolution be referred to the Board of Trustees with the request that the Board inquire into the methods of recording and analyzing statistics of death incidental to childbirth and to take such action as may be necessary to make them represent the mortality for this cause.

Mortality Statistics, 1924, Department of Commerce, Bureau of Census:

"As already pointed out, the classification of deaths from puerperal causes differs greatly in different countries. Higher rates in one country than in another, therefore, do not necessarily mean higher mortality from these causes. However, as classification in a given country presumably differs but little from year to year, the rates do presumably serve as useful measures of mor-

tality from these causes within the country itself."

Page 62: "Are puerperal causes of death an increasing or a decreasing danger to the women of the United States?

"If every State had had good birth and death registration since 1900 a satisfactory answer to this question would be possible, based on death rates from puerperal causes per 1,000 births, but as the birth registration area was not established until 1915, and then included but 10 states and the District of Columbia, it is possible to show only a few such rates for a few years, and it must be borne in mind that even then rates were too high whenever birth registration was incomplete.

"How do the death rates from puerperal causes per 1,000 live births in the birth registration area of the United States compare with the rates in foreign countries? Here again is a question of the greatest interest and importance which can not be answered satisfactorily both because of lack of data in this country and because there is no certainty that all deaths from these causes are classified in the same way in the various countries."

Not loose talk, but hard facts, are essential when compiling comparative statistics. And it is from too much loose talk and too lax a scrutiny of statistical methods that this maternal mortality slander has been attached to the United States—a nation noted for its sanitation and prophylactic progress.

FALSE PROPAGANDA STATING THE DEATH RATE AMONG BABIES AND MOTHERS IS MOUNTING AND THAT THEY ARE HIGHER IN THE UNITED STATES THAN IN FIFTEEN OTHER LEADING NATIONS

Truth distorted makes the worst sort of a lie. A glaring instance of such speciousness of statement lies in the fallacious propaganda sent out by friends of the nefarious and defunct Sheppard-Towner Act, and of other forms of maternity legislation. Through these sources of misinformation are circulated numerous definite and deliberate falsehoods.

The gist of the current variety of this inaccurate propaganda is the insidious untruth that the United States has a higher death rate than any other of the world's fifteen leading nations, and that this high mortality is being increased daily because the Sheppard-Towner Act is not spending more and more of the taxpayer's money in jobs for lay people dealing with medical service to the poor or unfortunate.

In the first place the United States hasn't the highest death rate among the world's fifteen leading nations or any other group of the world's population.

In the second place the mortality rate is not increasing because of any lack of appreciation of the Sheppard-Towner Act. It was shown recently by statistics that Illinois (Editorial, ILLINOIS MEDICAL JOURNAL, November, 1929) a state that repudiated the Sheppard-Towner Act, had a far lower maternity mortality than any of the states that had it. California was the only sizable state having the Sheppard-Towner millstone that did not have an increased or at any rate an unlowered death rate. California climate under any circumstances keeps this section of the United States out of the red where death rates are concerned.

Anybody who knows anything at all about the assembling and compiling of statistics knows that it is practically impossible to obtain an accurate census. Maternity census is probably one of the most elusive to obtain. There has been no census of weight taken on maternity mortality that would justify the statements sent out by the protagonists of this "lay medical service," that it is attempted to force upon the American people. The appended letter is an illustration of the untruthful propaganda that is being sent out.

DEATH RATE AMONG BABIES AND MOTHERS IS MOUNTING

"Higher in the United States than in Fifteen Other Leading Nations of the World

"New York—The death rate among mothers in childbirth and among babies is constantly growing and is higher in the United States than in fifteen other leading nations, according to *Woman's Home Companion.*

"The number of mothers and babies that die every year exceeds the whole number of American soldiers killed in the World War. In the past year the number reached 200,000.

"Relief from the situation is not in sight, according to the magazine. The federal appropriation for the

children's bureau expired last June and congress failed to renew it. The Jones-Cooper bill, which would serve the same purpose, has long been held in abeyance and unless action is taken soon, the work that had been started in nearly every state may become completely disorganized.

"The federal plan was to apportion a part of $1,000,000 among states that desired to establish children's bureaus. Each state receiving a grant was expected to match the sum with a local appropriation. The plan went into operation eight years ago and effective machinery was built up throughout the country. Now, with the federal aid withdrawn, many states are unable to keep up the organizations *and the death rate has been mounting steadily.*

"Fatalities have been unusually heavy in the mountains and other remote regions where proper medical and nursing care at the period of maternity are unavailable. Under the children's bureau organization, it was possible for visiting nurses and doctors to extend aid in isolated communities."

The periodical mentioned, *The Woman's Home Companion,* has long been interested in a "Better Babies Movement," sending out pamphlets and the like to prospective mothers. The idea has been a fine promotion stunt for the circulation of the magazine, and the simpler instructions of bathing children and keeping the home and food supplies sanitary has probably done more good than harm. Of late, however, the periodical mentioned has shown rabid signs of being another lay institution practicing medicine, and as such certainly should be set right by medical men versed in the practice of scientific medicine. The *Woman's Home Companion* is an excellent monthly magazine of high moral intent, and acceptable to clean and cultured homes, but it certainly is not a licensed medical practitioner and should not lay itself liable to the charge of malpractice on paper by usurping a skill of which it knoweth naught. "Federal aid" is no fairy godmother. "Federal aid" is hard earned dollars out of a workingman's pocket. Why take any more of these to pay taxes to help any magazine, no matter how meritorious, to build up its circulation, increase its advertising rates and likewise its profis? Both sides of a question should be freely examined and exploited by any fair, just group of individuals. Unfortunately when it comes to maternity and other welfare legislation the major portion of welfare sponsors seem disinclined to present all the facts to the public.

GET RID OF THE DOCTOR AS A PROFESSIONAL UNIT BUT USE HIM AS A COG IN THE MACHINE

The Doctor as an Individual Bears the Same Relation in Current Economics as the Middleman to the Big Merchant and So Must Be Stamped Out

The individual practitioner in medicine stands economically in the same position as does "the middleman" in business.

Now mass treatment of disease begins to be the order of the day. In Russia this mass treatment idea is classified under the blanket term of "Collectivism."

The creed of collectivism as well as its tendencies is to blot out mercilessly all individualism whether of commerce, art or science. The communistic, sovietistic, socialistic trend of much medical legislation, of the rampant craze for community medical practice and for state medicine applies this creed of collectivism to the individual practitioner in America.

It is well known that all vestiges of private enterprise are being exterminated with rapidity through the whole area of the "Soviet Union," and that poor Russia has really exchanged one despotism for another. It seems a shame that a democracy built upon the freedom of the individual, the immunity of private rights, should welcome with open arms the same creeds that are the very lifeblood of the tyrannous soviet. Law, religion, medicine, art, education, business and even the private lives of the citizens are under the drastic rule of the soviet, a rule that in spite of its uncouthness is even more despotic than the despotism of the czars. Not only are all private traders being blotted out with the the same zeal as the kulaks were destroyed but even small craft workers such as cobblers, dressmakers, and toymakers are denied economic survival except when working as members of cooperative and collective groups of their craft. Lawyers, too, can practice only as collectives. Their fees are limited. The proceeds are divided. The commissariat of health has proposed such regulations as makes survival of private medical practitioners a matter of the greatest doubt. Within a month all private hospitals will be liquidated. Private patients will henceforth not be allowed physicians connected with state hospitals and institutions. Under the soviet's elab-

orate social insurance system this means an overwhelming majority of the medical profession.

This gist of despatches received recently from Russia corroborates the statements made by Dr. Glenn Frank in an article published in this issue. As he points out the rough machinery for establishing a soviet in this country, with medical practice the object of its initiative is all around and ready for the assembling.

Protective measures against such an irremediable outrage lie within the hands of the physicians of the country and it rests upon them to take immediate steps under the slogan, "An ounce of prevention is worth a pound of cure."

A BILL IN CONGRESS TO PROHIBIT EXPERIMENTS ON DOGS IN THE DISTRICT OF COLUMBIA

There has been introduced in the House of Representatives a Bill known as H. R. 7884, the title of which is "TO PROHIBIT EXPERIMENTS ON LIVING DOGS IN THE DISTRICT OF COLUMBIA AND PROVIDING A PENALTY FOR VIOLATION THEREOF."

The bill was referred to the committee on "District of Columbia." A member of this committee from Illinois is Honorable Frank R. Reid, of Aurora (eleventh congressional district, comprising Kane, Will, Du Page and McHenry Counties).

Members of the medical, dental, pharmaceutical and nursing professions, the faculties of universities, colleges and educational institutions generally having research departments as well as hospital managements should write Congressman Reid, protesting against the enactment of such a bill as harmful to medical research and the advancement of public health.

In the March, 1929, issue of the ILLINOIS MEDICAL JOURNAL can be found most of the arguments needed, showing why such legislation should not be enacted. The data are quite exhaustive; for this reason we are not reproducing the article at this time. We will, however, to any one making request, furnish much information showing what vivisection has done for humanity.

In the January, 1930, issue of the JOURNAL we published an editorial showing the activities of the Illinois Antivicisection Society during the last six months of the year 1929. During the time mentioned they sent out letters stating that a "dog bill" will be introduced at the next session of the Illinois Legislature.

The next session of the legislature in this State convenes in ten months, or January, 1931. In this short interval much educational propaganda is required to get the real facts to the public. It therefore behooves the faculties of the universities, colleges, teaching institutions, research investigators, members of the medical, dental, pharmaceutical and allied professions, hospital managements; those interested in scientific progress and conservation of human life and the relief of human suffering, to get busy in a campaign of education showing that the passage of autivivisection legislation in Illinois or elsewhere will at least retard if not stop scientific medical progress and menace the health welfare of the public.

The educational vivisection campaign should stress the great advance that medicine has made through animal experimentation; that because of these marvelous discoveries made through vivisection hundreds of thousands of people are now living who would have perished if it were not for information obtained through experimentation on rats, mice, guinea pigs, rabbits, monkeys and dogs.

THE ILLINOIS ANTIVIVISECTION SOCIETY HELD A MEETING IN CHICAGO IN JANUARY, 1930

A JOINT MEETING TO PROTEST AGAINST THE APPOINTMENT OF DR. HAMILL AS CHAIRMAN OF THE WHITE HOUSE CONFERENCE ON CHILD WELFARE

The Illinois Antivivisection Society on Friday evening, January 24, at Hotel Sherman held a public meeting in Chicago which received some newspaper publicity.

Our representative attended the meeting. Excerpts from his report are as follows:

Joint meeting of the nine societies called by National Antivivisection Society to protest to President Hoover against his appointment of Dr. Samuel McC. Hamill of Philadelphia as chairman of the medical section of the White House Conference on Child Welfare. About 250 persons in attendance. C. E. Richard, of the National Antivivisection Society presiding. J. S. Codman of Boston, vice-president of New England Antivivisection Society, was principal speaker.

Groups represented:

National Antivivisection Society.

Illinois Antivivisection Society.
Anti-Cruelty Society.
Chicago Humane Education Society.
Evanston Humane Society.
American Medical Liberty League.
U. S. Health League.
Taxpayers' and Voters' League of Illinois.
One other, name of which could not learn.

Mr. Codman's address consisted of an attack on Dr. Hamill mainly read or quoted from the speaker's pamphlet "Human Vivisection and the American Medical Association," copies of which may be obtained from the New England Antivivisection Society, 605 Tremont Temple, Boston, Massachusetts. The attack was based on Dr. Hamill's use of tuberculin on 160 children in St. Vincent's Home, Philadelphia, as reported in Arch. Int. Med., Dec. 15, 1908. The argument was that these experiments were of no benefit to the patients, their consent could not have been obtained, therefore the procedure was unethical. Mr. Codman presented a dignified judicial argument, which to a LAYMAN must have been quite effective. For the purpose of the meeting, the case was very adroitly presented. The speaker stated he would have no criticism to offer if the experiments in question were for the benefit of the patients or even if Dr. Hamill *thought* they would be benefited. But he justified his criticism by quoting the author to the effect that the latter *admitted* that was not the purpose.

The speaker then quoted from "Defense of Research" Pamphlet No. 26 of the A. M. A. pointing out that there is an inconsistency in the attitude of the Association in defending human experiments such as Dr. Hamill's by silent acquiescence and, on the other hand, condemning as unethical such procedures, as set forth in an editorial, J. A. M. A., Dec. 20, 1913. He also read a letter from Dr. Richard Cabot condemning such experiments and stating that "it is high time to repudiate defense of human experiments as without ethical justification, a practice that is common and is condoned." (Quoted from hasty notes.)

Mr. Codman also read a letter which he had addressed to *Mister* Morris Fishbein (emphasizing title) asking for a statement of the view and attitude of the A. M. A.

Dr. Fishbein's reply was read, as follows (approximate quotation): "It is impossible for us to answer your questions. Our views are fully expressed in our pamphlet on animal experimentation."

The speaker then called attention to the fact that Pamphlet No. 26 is no longer included in the printed price list of publications by the A. M. A. and raised the question as to whether this was a tacit admission that it represented an unethical attitude or merely a matter of being out of print. If the former (he said) then some statement of policy should be made to the public.

A resolution was presented, addressed to President Hoover, asking for the immediate recall of Dr. Hamill's appointment. Individuals were urged to write personal letters of protest. Resolution adopted.

Dr. Held was then called on and spoke much as he has on previous occasions, a highly emotional and fanatical phillippic. However, he quoted an anonymous letter alleged to have been received by Mr. Richards: "If you damned fools haven't enough sense to keep that New Englander out of Chicago, we will take care of him. We don't want him here shooting off his mouth about doctors. It will take a dozen doctors to dress his wounds if he appears. We mean business." In the report of the meeting which appeared in the *Tribune* the follow morning it was stated that two policemen sat on the platform to protect the speaker. I saw no policemen in the room. If present they were not in uniform and did not sit on the platform. Incidently many of those in the audience apparently knew of this letter as there was much evident apprehension over the presence, in a body, of about a dozen medical students, from Northwestern, probably attracted by the publicity notice in the papers. They were watched quite closely for any hostile move.

Another resolution was introduced by a man unknown to me, condemning vaccine and serum therapy and inviting the A. M. A. to participate in a symposium on the subject. This was promptly squelched by both Mr. Richard and Mr. Codman as having no bearing on the main purpose of the meeting. A very effective move. The same man stated that from a friend of his who graduated from a local medical school four years ago he had learned that sulfuric acid had been poured down the throat of a live, unanesthetized dog and that his informer had, out of pity, killed the dog, as a result only narrowly escaping expulsion.

Next, W. A. Gross, 538 Rich Avenue, Evanston, states that his boy died about a year ago as a result of treatment, during an attack of scarlet fever, administered by Dr. ————. He alleged that serum treatment was the cause of the boy's death.

Personal impressions. Aside from these latter incidents, I should say that, from the viewpoint of the antivivisectionists, and in consideration of the purpose of the meeting, it was a highly effective and successful meeting. As stated above, there were many weak points in the whole affair apparent to me, but from the viewpoint of the laity I believe this impression is correct. Also, no one should underestimate Mr. Richard's ability to succeed in the task he has set himself, of making the National Antivivisection Society a potent influence. From this meeting I gained considerable respect for his ability as an opponent.

ILLINOIS WOMAN'S AUXILIARY UNITS SEEK INFORMATION

The following units of the Woman's Auxiliary, Illinois State Medical Society, gives the following information and would like data bearing on the activities of other County auxiliaries:

The Auxiliary to the Cook County Medical Society entertained the National President, Mrs. Hoxie, and her board at tea in November. At

the December meeting the State President, Mrs. John R. Neal, gave a splendid paper. The Chicago Auxiliary is glad to have members of the County Auxiliaries attend their meetings in the Medical and Dental Arts Building whenever they are in Chicago on Wednesdays.

Other county Auxiliaries which are doing interesting things will please send news notes to Mrs. T. O. Freeman, Mattoon, Illinois, Publicity Chairman.

McDonough County Auxiliary meets for dinner with the doctors and enjoys their program when interested. Otherwise, they play bridge. They wish to know more about the State Auxiliary.

Randolph County Auxiliary seems to have a very much alive president, but since they are still "in the mud," as she expresses the condition, their attendance is limited. They recently had a very delightful social meeting at the home of the president.

Vermilion County Auxiliary meets once a month and carries on many interesting activities. At the January meeting they reviewed Dr. Whalen's article on "What Can the Woman's Auxiliary Do?"

McLean County Auxiliary has been writing to senators and representatives voicing their protests against the Sheppard-Towner Extension Bill and the Anti-vivisection Bill. Their January meeting was featured by a lecture on "The Problem of the Cripple" given by a local surgeon.

Coles-Cumberland Auxiliary meets every two months, has dinner with the physicians, then adjourns to a private room for study and discussion of problems affecting the practice of medicine. For January the subject was State-controlled Medicine in Russia.

The president of Douglas County is planning to entertain the members of the Auxiliary at a tea in February. This Auxiliary finds difficulty in having meetings during the winter months.

The president of Fulton County Auxiliary says they need more information about the purpose of the Auxiliary.

De Kalb County Auxiliary is in need of more information to keep the interest alive.

THE EDUCATIONAL COMMITTEE REPORTS PROGRESS

The Educational Committee will schedule a speaker to address the teachers of Carroll County on Monday afternoon, March 17. The County Superintendent of Schools, who has speakers from the Committee for the past three annual teachers' institutes, writes: "Our teachers have always enjoyed these talks, and would like another speaker this year."

The Superintendent of the Macoupin County Public Schools has asked the Educational Committee to schedule a physician to take part in the program of his annual teachers' institute to be held next October.

J. Howard Beard, Health Officer at the University of Illinois, is cooperating with the Educational Committee by giving a health talk to the students of the Paxton Community High School on February 13. Cleaves Bennett, Councilor for the 8th District, will address the students of the Charleston High School on Tuesday afternoon, March 18th. In the evening he will speak at the open meeting which is being sponsored by the Charleston Parent Teacher Associations. The Educational Committee is furnishing an exhibit of health posters to be used in connection with these two appointments.

THE UNITED STATES PHARMACOPOEIAL CONVENTION

Eleventh Decennial Convention for the Revision of the Pharmacopoeia of the United States of America, 1820-1930

In compliance with the provisions of the Constitution and By-Laws of the United States Pharmacopoeial Convention, the President of the Convention hereby invites the several bodies, entitled under the Constitution to representation therein, to appoint delegates to the Eleventh Decennial Convention to meet in Washington, D. C., on May 13, 1930. Eligible organizations and colleges which have not yet done so, should send for credential blanks to the Secretary of the Convention, Lyman F. Kebler, M. D., 1322 Park Road, N. W., Washington, D. C.

The Board of Trustees have asked that cre-

dentials be filed with the Secretary of the Convention by March 14, 1930.

Respectfully,

REID HUNT, M. D.,

President of the United States Pharmacopoeial Convention of 1930.

POST-GRADUATE COURSE

Professor Georges Portmann will hold a post-graduate five-week intensive course of ear, nose and throat surgery at the University of Bordeaux, France, which commences July 21, 1930. This course is open to American physicians. For information apply to Dr. L. Felderman, Mitten Building, N. W. cor. Broad and Locust Sts., Philadelphia, Pa.

PUBLIC MEDICINE BUREAU PROPOSED —WILL ABOLISH DEPARTMENT OF PUBLIC HEALTH—WOULD FURNISH FREE AND COMPLETE MEDICAL SERVICE TO RESIDENTS OF MASSACHUSETTS

According to the *North Adams Evening Transcript* under date of December 23, 1929, a bill was introduced in the Massachusetts legislature December 20 that is of considerable interest, not only to physicians of Massachusetts but of other states. It calls for creation of a new department of public medicine, abolishing the department of public health, the department of mental diseases and assuming other activities in the medical line of the departments of public welfare and industrial accidents. It must bear the signature of a legislator before it can be considered officially presented. It is signed by Armand C. Bang of Newton and Dr. Gilbert W. Haigh of Worcester.

The new department would be created to furnish a free and complete medical service to the people of the commonwealth, patterned upon the bureau of medicine, and surgery of the United States navy. It would be in charge of a commissioner to be known as the medical administrator of Massachusetts, who would receive a salary of $10,000 with allowances. Five assistant medical administrators would be created, each receiving $8,000 and allowances.

MEDICAL ADVERTISING SOLICITOR WANTED

The Illinois Medical Journal desires one or more advertising solicitors. Persons with advertising experience preferred. No guaranteed salary. Compensation on commission basis only.

Illinois Medical Journal,
6221 Kenmore Ave., Chicago.

WANTED: BACK NUMBERS OF THE ILLINOIS MEDICAL JOURNAL

The Bureau of Science Library, Department of Agriculture and Natural Resources, Manila, Philippine Islands, desire back numbers of the JOURNAL as follows:

Vol. 29.—February and March issues, 1916.
Vol. 30—August and December issues, 1916.

Kindly send numbers asked for to the ILLINOIS MEDICAL JOURNAL, 6221 Kenmore Ave., Chicago.

The managing editor would like a copy of Vol. 26, July, 1914. Please state price.

THE SHIFTING OF DISEASES DURING THE PAST THIRTY YEARS—SOME DISEASES HAVE SHOWN MARKED DECLINE OTHERS HAVE SHOWN CORRESPONDING INCREASE

According to a recent bulletin compiled by Dr. Andy Hall, State Health Director, thirty years of attack have put to flight a dozen diseases so that the mortality rate now attributed to them stands nearly 70 per cent. below the figure prevailing at the turn of the century. A half dozen other diseases have increased so in malignancy that the death rate from them is now 150 per cent. above what it was in 1900. Little or no change has marked the course of the 120 odd other diseases common to humanity in this latitude.

This is the gist of a review of the health situation in Illinois, compiled by Dr. Andy Hall, state health director, in mapping out the future program of his department with results thirty years hence in view. The shifts in the battle front of diseases have netted a 10 year increase to the average span of life since 1900, the director pointed out, and possible shifts during the next

thirty years should net another decade of average life extension.

"In 1900," Dr. Hall said, "the combined death rate from tuberculosis, diarrhea, typhoid fever, scarlet fever, diphtheria, smallpox, malaria, puerperal septicemia, bronchitis, whooping cough and congenital debility was nearly 500 per 100,000 population. In 1928 it was less than 150. Very marked declines have been observed in the death rates from each of these causes, ranging from a decrease of 94 per cent. for typhoid fever to 47 per cent. for tuberculosis. These facts denote the triumphs of the practice of modern medicine, sanitation and hygiene.

"On the other hand, the death rate from appendicitis, diabetes, cancer, nephritis, cerebral hemorrhage and heart disease, considered in aggregate, has gone up from 250 to 625 per 100,000 population. For each of these ailments the death rate has more than doubled since 1900 and for diabetes it has more than tripled. Some of the increase is due to the prevention of childhood infections, which causes a larger percentage of people to reach the age when these diseases are most common. This does not explain the increase in appendicitis, a disease primarily of young people, nor does it explain a significant proportion of the increase in general.

"Pneumonia heads the list of diseases which have manifested no significant change in malignancy or frequency. In this group also is found measles, rheumatism, cirrhosis of the liver, hernia, syphilis, diseases of the stomach and tetanus.

"Fatal accidents, except for those due to automobiles, have declined. The phenomenal increase in deaths from automobile accidents is an outstanding black spot on the history. In 1913 there were only 2,488 deaths from automobile accidents in the United States. Last year there were nearly that many in Illinois and over ten times that many in the United States.

"The end of the next 30 years ought to find many of the declining group almost completely stricken from the disease calendar. Pneumonia and measles should be subject to significant control. The age at which heart disease and cancer becomes significant should be shoved upward noticeably and diabetes and appendicitis ought to become rare causes of death."

Correspondence

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

Alexander McKinlock Memorial Campus
303 East Chicago Avenue
Chicago, Illinois
Office of the Dean
Ward Memorial Building

MEDICAL HISTORY OF ILLINOIS

February 3, 1930

To the Editor:

May I express the hope that the Illinois Medical Society will not lose the unusual opportunity which lies in completing the medical history of the State of Illinois. Regardless of the cost, the accomplishment of this task must be assured for it means the preservation for all time of the names and careers of those splendid men who have created Illinois medicine.

There are many reasons why the recorded history of medicine is of paramount importance. First, few physicians leave monuments to themselves or to their work in the form of large public endowments that either preserve their names or the traditions of the period in which they lived.

Second, the public frequently exhibits deep gratitude to the physician in the period of illness, but rarely do patients of wealth dedicate memorials to physicians who have aided in preserving the health of the community.

Some few physicians will be remembered by their outstanding work; for example, the name of Frank Billings has been so indelibly written into the life of Chicago and into world medicine that regardless of monuments his name will endure forever. Chicago and Illinois may well be proud of this outstanding figure. But those who have accomplished their tasks by the wayside, who have meant much to the towns and villages, to the development of the right type of medical practice, to the progress of the science of medicine, to the evolution of medical education, to these all that the present generation can do is to see that, in part at least, their names are not forgotten and their good deeds are recorded.

The Illinois Medical Society owes much particularly to Dr. Lucius Zeuch and Dr. Charles

Whalen who have worked unceasingly and without the slightest compensation in the gathering of material for the second volume of the medical history of Illinois. The work covers every county in the state and will preserve a record of the utmost value to posterity. History as such cannot be written too close to its making. On the other hand every month of delay means loss of valuable material: record books are disappearing as are photographs of localities and individuals. The work of the committee has been most timely and it is now of the utmost importance that the profession of Illinois shall see clearly the debt of remembrance owed to the makers of Illinois medicine.

Sincerely yours,

Irving S. Cutter, M.D., Dean.

REFUTE STATEMENT THAT THE DEATH RATE AMONG BABIES AND MOTHERS IS MOUNTING CIVIC FEDERATION OF CHICAGO

Chicago, Ill., Nov. 29, 1929.

To the Editor: Here is some propaganda from the *Chicago Eagle* entitled "Death Rate Among Babies and Mothers Is Mounting." I suspect you have the data with which to answer it. May I suggest if you do have it or can get it that you publish one of your pithy editorials setting up this claim and the actual facts and send copies of the ILLINOIS MEDICAL JOURNAL in which it appears to the press of the city and state.

DOUGLAS SUTHERLAND, Secretary,
Civic Federation of Chicago.

NOTE AND COMMENT

Elsewhere in this issue appear two editorials in which we attempt to show that there are no legitimate statistics in existence justifying the statement that death rate among babies and mothers is mounting, neither are there authentic statistics available on which to base the statement (as per *Woman's Home Companion*) that the maternal death rate is higher in the United States than in fifteen other leading Nations. In the interval between the receipt of the above letter and the time of going to press with this issue, we have conducted an exhaustive research on maternal vital statistics, hoping to be able to refute by authentic data (statistics measured by the same yardstick) showing the actual status of maternal mortality in the various countries. Scientific trustworthy statistics along this line are not in existence.

We refer the reader to the editorials mentioned.

HERE IS SOMETHING OVER WHICH THE COMMITTEE ON MEDICAL CARE MAY DELIBERATE

January 9, 1930.

To The Editor: Your plea for additional "Correspondence" is about to be rewarded with a story of the *Worm that Wriggled but Could Not Turn.*

The story includes copies of a letter received by a doctor, from a railroad engineer, and the reply, typed across the bottom of the letter. It goes:

Once upon a time, between the months of June and December of 1922, to be exact, a railroad engineer incurred a financial obligation in the amount of twenty-one dollars due for medical services rendered a member of his family in his home. Railroad engineers are said by conductors to class among the best overpaid of workmen.

Envision a lapse of time during which payments have been made upon the bill, mostly in two dollar amounts. You are invited to weep over copies of subsequent correspondence.

Copy of a letter and reply:

December 31, 1929 (but received on first delivery of January 8, 1930). "Doctor—Dear Sir: Will you please send the balance of my bill with you. We certainly appreciate you being so patient with us and we are hoping you or wishing you and yours a happy and prosperous new year. CJH., blank, blank street, blank, Illinois." And the reply, without superscription: "BALANCE DUE $6.00. You got me wrong. It is not patience at all in your case: I have just plain neglected to step on you because I was busy doing better things—laziness, I guess. I'm sorry. My New Year hasn't a chance in the world to be even bearably prosperous unless other people show behavior far different from yours. Sin-

cerely, blank: January 8, 1930. (One inclosure: receipt for the proffered two dollar POMO)."

Now, I ask you: Does the Tuberculosis "Prevention and Treatment" Society care for the doctor's share of the remaining SIX? Does the Committee on the Cost of Medical Care wish to include the burlesque fifteen (six twos and a three within the same eight years) in its record of deliberations? Both are welcome.

Sincerely,

SUBSCRIBER.

IF STATISTICS WERE FACTS THE SHEPPARD-TOWNER MATERNITY BILL SHOULD NEVER HAVE BEEN ENACTED

MONTANA WORKING UNDER THE SHEPPARD-TOWNER ACT IN 1927 HAD THE LOWEST BIRTH RATE IN THE NATION AND THE HIGHEST SEPTICEMIC RATE

Brooklyn, N. Y., Jan. 2, 1930.

To the Editor:

Lay and even medical papers, interested in perpetuating the Sheppard-Towner Maternity Bill, which a Congress wisely decided to terminate before it wrecked the nation, have been feeding us statistics for some time which tend to confuse the reader and cloud the real issue of Sheppard-Towner Maternitism. An overworked one is that "maternal deaths amount to 200,000 a year, more than were killed in the World War! !" Let us see if we can not clarify the atmosphere a little with some of those statistics which the Uplifter loves so much and I hate. For statistics lie so easily and conveniently.

Census reports showed, in 1920, 43,168,199 married people (exclusive of the widowed). That means 21,584,099 couples and the total baby production was 1,856,068, or one baby to every 11.6 couples! Some showing of virility and fecundity for our glorious republic. We who do have children may be pardoned a little superiority complex.

Now, let's see about that little "200,000 maternal deaths per year" in the light of those 1,856,068 live births, and which make 10.7 deaths per thousand. Now, turn to what the Adjutant General's office says: 4,727,988 U. S. troops in the World War (some here, some over there). There were 50,510 deaths (inclusive of immediate and consequent upon wounds) which, also, makes 10.7 deaths per thousand involved in the struggle. Still another statistician says the general death rate of mothers was 6.5, with the rural 5.7 and the urban 7.4.

Remember, please, that we who see the patients die and know the proportionate value of causes which contribute to the fatal termination of a pregnancy can not pass the whole picture over to the Registrar of Records and beyond him into the mind of the partisan statistician who is searching for "facts" (God save the mark!) so that deaths from causes complicating pregnancy, being tied in with the pregnancy itself, are often interpreted, by the Uplifter's statistician, as an argument for the perpetuation of the Sheppard-Towner Maternity Bill with its expenditure of $2,000,000 each year by the Children's Bureau of the Federal Department of *Labor!* (sic).

If statistics were facts the Sheppard-Towner Maternity Bill should never have been enacted. Witness: In the text-book of the Uplifter, used as a book of reference when propagandizing that Bill, in addition to the writings and teachings of Mme. Alexandra Kollontay, Soviet Russia's first Commisar of the Department of Welfare, which are quoted generously and approvingly by the author, who is an employee of the American Association for Labor Legislation, which text-book is "Maternity Systems in Other Countries," alias "Children's Bureau Publication No. 60," printed and distributed with our tax money—there will be found at page 75 the fact that 250,000 compulsorily insured women in Germany, under just such "maternity aid" as is vouchsafed us under the Sheppard-Towner Bill, where the Bothersome Berties and Meddlesome Matties dispense the whispered word of how to be childless, though married, yielded only 4.28% of births, while 25,000 voluntarily insured women NOT subject to such visitations yield 42.8% births; ten times the percentage from one-tenth the number of women. Then the 250 000 yielded 17.2% abortions, while the 25,000 yielded but 2.6% abortions—one-seventh the percentage. . . . AND . . . the deaths of women from disease causes complicating pregnancy was 11% among the 250,000 and 10.2% among the 25,000—almost identical. Rather

good "statistical" evidence that birth control and abortion, NOT death prevention, follows the flag of the Brotherhood of Man held in the hand of the Uplifter.

Well, that is what I think may properly be deduced from the Uplifters' own statistics. See if you can see what I see in the following facts:

From 1921 to 1926 the Bothersome Berties and Meddlesome Matties of the Children's Bureau of the Federal Department of Labor carried on an intensive campaign among the virile men and fruitful women of the State of Montana and when they got through it was shown by the U. S. Public Health Reports of early 1927 that Montana came through with the lowest birth-rate in the Nation, 14.2 (13.6 in 1927), and the highest septicemic rate. If septicemia in that connection does not mean blood poisoning following abortion, what can it mean?

Your Journal has carried some comparative figures of the States which have and which have not adopted the Sheppard-Towner Maternitism with credit to the latter which, afer all, is relative because a plague such as that has no respect for State boundaries and is bound to filter in. The really important thing for this nation to consider is the fact that the socially superior, the highbrows, the intelligentsia, are running to Pekingese pups and Chow dogs, instead of staying parental, while the so-called lower order of Society, the "inferior"—the proletariat—goes right on using his women and the women go right on glorying in large families and feeling ashamed if they are childless—but the top layer of their children, under our generous system of education, graduate into the middle range of Society, and, like the middle-range, aping the intelligensia, lap up this birth-control stuff and drop the birth-rate IN THAT MIDDLE-RANGE which is the natural buffer (strong or weak) against the oppression of aristocracy and the horrors of mobocracy.

Louis I. Dublin, Ph. D., statistician for the Metropolitan Life Insurance Company, a worthy investigator, tells us that for progress a marriage should produce four children—two to take the place of the producers when they shall have gone West, and two to take care of death among the progeny—and, perhaps, those 10.6 barren ones referred to in the beginning of this article. That three children are too few and five are more than enough and that the United States is showing two and one-half; at that, only one couple in 28 are producers (statistically).

That same investigator also points out the fact that in 1916 Dr. Doyen of the French Academy of Medicine warned the French people that the principal cause of death in France was venereal disease. Rather tough on the Uplifter who is going to save us from being a race of morons by limitation of population and save those 200,000 mothers at the cost of quite a bit more pollution of the rest of us. Today, by the by, the death rate in France is greater than the birth rate. In 1811 it led Germany and England in population. In 1911 it had fallen to third place. Do you see what I see?

Where is our adult population coming from twenty years hence to take care of the increased mass production of "big business," particularly since we have put the bars up to immigration?

How about the morale of the country if the morality of the people is to be measured by a falling birth rate, an average of 2.65 per 1000 of population from 1921 to 1926 after five years of Sheppard-Towner Maternitism? We surely can not measure it by reduced virility—and we can not blame it on the war, which was over in 1918.

Why can we not be sane about this statistical stuff? On the basis of that 2.65 per 1,000 of population we lost 314,364 babies per annum (1921 to 1926)—babies who will never be American citizens. Yet the Sheppard-Towner Maternityites tell us that the baby death rate per 1,000 live births dropped from 76 in 1921 to 65 in 1926 through the beneficent influence of that Maternitism. Well, the breakfasts you lost because they would not stay down are just as much of a loss as those that you did not get, so if we add those 314,364 "stopped babies" we will find the baby death rate or baby loss rate in 1926 was really 243.31 per 1,000 live births! Let them laugh that off—if they can.

Our density of population in 1930 will be 40 persons per square mile of land area. Our density increase for the past sixty years has been 4.5 persons per square mile per ten-year census period or 0.45 persons per year. At the same rate of increase it will be 1,159 years before we reach Holland's 561.6. Barring war, pestilence, famine, birth-control and steriliza-

tion, or other national calamity, it will be A. D. 3.089 before we may begin to think of this limitation of population stuff, which Holland is now regretting and France has long since been regretting.

Good night, statistics. Good morning, common sense.

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642 Second St.

OFFICIAL HEALTH PROGRAM OF THE WOMAN'S AUXILIARY OF THE AMERICAN MEDICAL ASSOCIATION

1. PUBLIC HYGIENE.

Fundamentals upon which Auxiliary work for the improvement of public hygiene should be based:

(1) *Recognition of the fact that* public health work is a highly technical job, requiring scientific, technically trained workers. That health work undertaken by lay women with no knowledge of the public health problem as a whole is necessarily fragmentary and ineffective.

(2) *Recognition of the fact that* every state, county and city is entitled to a scientific, full-time health department (organized not to treat the sick, but to prevent disease and promote health), adequately financed, free from political domination, and providing continuity of service to a trained personnel so long as work is efficient.

(3) *Recognition of the fact that* the first and most fundamental job for lay organizations like the Auxiliary is to secure such scientific full-time health departments and adequate health protection, in their state, their county, their city or town.

(4) *Recognition of the fact that* where efficient, full-time, scientific health departments do not exist health activities must be initiated and carried on by volunteer unofficial agencies; lay organizations should support and cooperate with the constituted health officials and should be willing to take orders from them.

(5) *Recognition of the fact that* no health department, state, county or city, can do effective work without intelligent cooperation of the public; that such public cooperation depends upon widespread health education; that lay organizations can do this educational work, and are needed for it, and that the Auxiliary can be one of the most vaulable tools for an official health department to use in this work.

Most volunteer agencies do not yet realize the wastefulness of their individualistic efforts. One of the first things the Auxiliary should do is to work for a change of attitude in other volunteer women's organizations.

The National Auxiliary recommends that each State Auxiliary undertake, under the direction and with the help of the Public Health Committee of the State Medical Association and of its Advisory Council a study *first of all* of the fundamental principles of health promotion and disease prevention; second, of the set-up considered essential by public health experts for an effective state health department, of qualifications of personnel, adequate budget, and the like; and third, of the state health conditions; that of acquainting the state board members with the result, and that recommendations for educational work by the county Auxiliaries be based upon the conditions found.

In states where all is well and where time has developed good official health machinery and good health conditions, general knowledge of the fact will tend to prevent interruption of the excellent work and will be a source of satisfaction to the women of the state.

In those states where there is much yet to be done, this investigation will indicate what sort of work needs doing first. For example:

(a) In those states which are not in the birth registration area the Auxiliaries would, without doubt, wish to tackle, as their first job, the ninety per cent birth registration problem.

(b) In those states in which the state health department believes the "County Health Unit" to be the solution of the rural health problem, the county auxiliaries should be encouraged to take as their chief work such persistent and widespread education of the public as will gradually create a general demand for the full-time county health department.

(c) In those states where the rural health work is directly done "long distance" by the state health department, the county auxiliaries, working under the directions of the state health department, can carry on intensive local health education work which would be impossible for the state department without intelligent local cooperation.

To those auxiliaries which agree with these ideas the committee recommends the following outline of study:

(1) Vital Statistics. Their value. Compare the vital statistics of the state with those of other states. Compare the vital statistics of the different counties of the state. Compare the vital statistics of the cities with other cities in the state, and in the United States.

(2) The State Health Department; its organization, and program: (a) For general state work; (b) For cooperating with the counties in improving county health conditions.

(3) The value of the Public Health Nurse.

(4) The County Health Unit as a possible solution of the rural health problem.

Community-wide Conditions Which Affect Health

(5) Milk: Milk standards, why necessary, what milk standards your community needs. How are these needs being met?

(6) Housing: Your community housing laws. Housing conditions as they have developed under these laws and as they affect health. Improvements needed.

(7) General sanitation and its relation to the death

and morbidity rates. Sewage disposal. Water. Garbage. Flies. Dust and street cleaning, etc.

II. PERSONAL HYGIENE.

The improvement of personal hygiene in any community is almost entirely a matter of education. Here again the Auxiliary members must first educate themselves before they can take a safe part in educating the public. The committee, therefore, recommends that the Auxiliary study programs shall include such subjects as:

Health Promotion: Prenatal care.

Child Welfare: Infant and pre-school hygiene. School hygiene. Mental hygiene. Social hygiene.

The advantage to the public of general compliance with health regulations.

The periodic health examination.

Control of communicable diseases.

The entire program should close with a survey of all the private agencies doing health work in the community, and a discussion of the possibility and desirability of centering the direction of all such work in a full-time, scientific health department, under which the private agencies, while still maintaining their identity, would work in complete cooperation.

It is understood that before taking up any of these specific activities, the State or local county Auxiliary should obtain the approval and consent of the State or local county Medical Society.

MRS. JOHN R. NEAL,
President, Woman's Auxiliary to the Illinois State Medical Society.

SCHICK TEST CHART BEING DISTRIBUTED FREE

The U. S. Standard Products Company of Woodworth, Wisconsin, has just brought out a highly interesting color card on the Schick test for diphtheria prevention.

On its face is an actual color reproduction of nine typical reactions to the Schick test absolutely faithful in reproduction and admirably suited for comparative notes.

The card is ideal for reference purposes and attractive enough for either office hanging or even framing. The card is being sent free to physicians upon request to the U. S. Standard Products Company.

DON'T FORGET YOUR INCOME TAX

FEDERAL INCOME TAX PROVISIONS AFFECTING THE MEDICAL PROFESSION

The Revenue Act of 1928, effective as of January 1, 1928, made no change in the rates of tax affecting individuals but did increase the maximum "earned income" allowable from $20,000 to $30,000.

Returns must be made to the Collector of Internal Revenue of the district in which the individual affected resides before March 15, 1930, at which time the tax is due and payable. In event the taxpayer desires to pay the tax on the installment basis, the first installment of one-quarter of the tax is due on March 15, 1930 and a quarterly installment every three months thereafter, namely, June 15th, September 15th, and December 15th.

Responsibility for making these returns is vested with the individual. Blank forms are mailed to all known persons who have previously made returns. Failure to receive such forms, however, will not be acepted as an excuse for failure to file within the time specified by the law.

Under regulations effective last year, all persons deriving incomes from a business or profession, or both, are required to file their return upon Form 1040 (the large form). The small form, or 1040A, is for persons who secure their incomes from wages, salaries or interest alone and where the gross amount is less than $5,000. The large form, or 1040, is also used by persons reporting an income of $5,000 or over, regardless of the nature of its source.

The large form, or 1040, was mailed to all physicians by the Collectors of Internal Revenue. If such blank is not received, apply to the Collector of Internal Revenue of the district in which you reside.

RATES OF TAX

Normal Tax Rates for the calendar year 1929 *only:* First $4,000 in excess of credits, one-half of one per cent; next $4,000, two per cent; and the remainder of net income four per cent.

After the calendar year 1929, the normal tax rates imposed by the Revenue Act of 1928 will again be effective.

The Surtax Rates: Surtax is computed upon net income before personal exemption dividends and taxable liberty bond interest is deducted. The surtax is not applicable to net incomes of less than $10,000.00 and upon net incomes in excess of that amount, the tax is levied on a graduated scale. A partial list of surtax rates is shown below:

	Rate of Tax	Tax
Net incomes up to $10,000		
In excess of $10,000.00 and not in excess of $14,000.00	1%	$ 40.00
In excess of $14,000.00 and not in excess of $16,000.00	2%	80.00
In excess of $16,000.00 and not in excess of $18,000.00	3%	140.00
In excess of $18,000.00 and not in excess of $20,000.00	4%	220.00

For example, a person having a net income of $11,500.00 will be required to pay a 1% surtax on that amount of income in excess of $10,000.00 or 1% on $1,500.00, a surtax of $15.00. A person whose net income was $14,800.00 would compute his surtax at 1% on the first $4,000.00 in excess of $10,000.00 or $40.00 plus 2% on net income in excess of $14,000.00, that is, 2% on $800.00, $16.00; a total of $56.00 surtax.

LIABILITY TO FILE

If married, a return should be filed if the net income was $3,500 or over. If single, a return should be filed if the net income was $1,500 or over. If the *Gross Income* was $5,000, or over, a return is required whether married or single, and regardless of the net

amount left over after legitimate expenses are deducted.

Liability to file a return is contingent upon the amount of net income, and not upon a net income with personal exemptions deducted. In other words, if the net income was $1,500 or $3,500, single or married respectively, and personal exemptions reduce these amounts, individuals *will not be required* to pay a tax, but *must file a return.*

In case the status of a taxpayer changes during the taxable year, the personal exemption shall be an amount which bears the same ratio to $1,500 as the number of months during which the taxpayer was single bears to twelve months, plus an amount which bears the same ratio to $3,500 as the number of months during which the taxpayer was married and living with husband or wife, or was the head of a family, bears to twelve months. For this purpose a fractional part of a month shall be disregarded unless it amounts to more than half a month, in which case it shall be considered as a full month. The amount of personal exemption shall not exceed $3,500 where the head of a family is married during the taxable year.

DEDUCTIONS AND DEPRECIATIONS ALLOWED

A summary of deductions and depreciations which may be entered in the tax return and many of which are peculiar to physicians alone, are listed below. The number given after each heading refers to the paragraph numbering on the pages following which explain, in detail, how to arrive at the deductions and the depreciations.

DEPRECIATIONS ALLOWED

Automobile—Professional use (3)
  25% cost price
  Classification includes snowmobiles.
Instruments (5)
  20% of purchase price surgical instruments
Library (7)
  10% on medical books
Office (6)
  10% cost furnishings and fixtures.

DEDUCTIONS

Automobile—Professional use (3)
  Cost of upkeep
  Cost of repair
  Salary of chauffeur
Debts (12)
Dues—Professional (9)
Any paid in interest of business or profession
  County Society
  State Society—$10
  Special Societies
    College of Surgeons
    College of Physicians, etc.
Fire—Losses by (11)
Insurance premiums (11)
  State Medical Defense, $2
  Other malpractice policies
Auto—Public liability
  Auto theft
  Auto fire
  Theft of professional equipment
Fire—Professional equipment
Lawsuits (11)
  Expense in defending malpractice suit
Library (7)
  Subscriptions to medical journals—scientific publications
Medical meetings (10)
Medicines—Supplies (5-11)
  Medicine used in office
Bandages
  Laboratory materials
  Other supplies necessary to operate office
Office (6)
  Cost of telephones
  Cost of heat
  Cost of light
  Cost of water
  Taxi fare, car fare, railroad fare on professional calls
Office Rental (2)
Personal Exemptions (1)
Salaries (4)
  Nurse
  Laboratory assistant
  Stenographer
  Clerical worker
  Maids, caring for office and phone
  Any other employee rendering service in connection with practice or care and treatment of patients
Scientific Meetings (10)
Spectacles—Sale of (11)
Taxes—Licenses (8)
  Upon any materials required in professional work
  Licenses to prescribe or use alcohol
  U. S. narcotic tax
  U. S. Dues Tax on Club Dues
  Auto license.
  Re-registration fees if any
  Occupational tax if any
Traveling Expenses (10)

1. PERSONAL EXEMPTIONS ALLOWED

If married and living with wife, or the head of a family for the entire year an exemption of $3,500 is permitted.

If single, and not the head of a family, the personal exemption is $1,500. An additional $400 for each person, other than husband or wife, dependent upon and receiving support from you, is allowed, provided the dependent is under 18 years of age, or incapable of support because of mental or physical condition.

In the case of a change in marital status during the year, the exemptions of $3,500 and $1,500 shall be prorated over the period of married and single state.

2. OFFICE RENTALS

If a physician pays rent to another person for office space, he is permitted to deduct the amount from his gross income. This includes regular office space in a rented home provided office hours are maintained. If

he owns his home and maintains an office in it, he cannot claim a deduction for office rent.

3. AUTOMOBILE

The cost of repair and upkeep of an automobile used in professional visits may be deducted. A "snowmobile" used by physicians in making winter rural calls is classed as an automobile and its depreciation and expense deductions are permissible. The salary of a chauffeur, if most of his time is spent in driving to professional calls, may also be deducted. Sums spent for taxi hire, car fares, etc., while on professional calls, may be deducted. The cost of a business automobile may be depreciated.

If the total cost of an automobile is $2,000 and its estimated period of usefulness is five years, $400 or 20 per cent of the cost may be deducted each year for 5 years.

4. ASSISTANTS

Deductions are permitted for the salary of a nurse, laboratory assistant, stenographer or clerical worker in the office so long as the duties of these are in connection with the physician's professional work. Wages paid to maids taking care of the office, answering the telephones are also deductible, as are any funds paid to employees for services rendered in connection with practice, or care and treatment of patients.

5. MEDICINES, INSTRUMENTS, SUPPLIES

Medicines used in the office to treat patients, bandaging, laboratory materials and all other supplies necessary to operate a physician's office may be deducted. Upon surgical instruments, one fifth of the purchase price may be deducted annually for five years under depreciation account.

6. GENERAL OFFICE EXPENSE

Cost of all telephones used in the office is exempt and may be deducted. Expenditures for heat, light and water for the office may be deducted. An annual depreciation of 10 per cent of the cost of office furnishings and fixtures may be deducted.

7. LIBRARY

Most physicians have a more or less extensive library. Courts have held that medical books during the course of ten years become out of date. For this reason, a 10 per cent depreciation may be deducted annually.

8. TAXES, LICENSES

Any taxes paid upon materials required in professional work are exempt. All licenses which the physician is required to take out, may be taken off the gross income reported. This includes the license to prescribe or use alcohol, narcotic tax, automobile license, local occupational taxes, etc.

9. PROFESSIONAL DUES

Dues paid to professional associations to which, in the interest of his business or profession he belongs, are exempt and may be deducted. Also subscriptions to all medical journals or scientific publications are exempt.

10. TRAVELING EXPENSES

Traveling expenses necessary for professional visits to patients are deductible. Traveling expenses in bona fide attendance upon scientific meetings are deductible (Jack vs. Commissioner of Internal Revenue—Board of Tax Appeals, Oct., 1928). Expenses in attending post-graduate medical courses are not deductible.

11. MISCELLANEOUS

Laboratory Expenses—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of other corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire, etc.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense, and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft or professional equipment, and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits—Expenses incurred in the defense of a suit for malpractice are deductible as business expense. Expenses incurred in the defense of a criminal action, however, are not dductible.

Sale of Spectacles—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should, in such cases, show charges for services separate and apart from charges for spectacles, etc.

12. WHEN TO DEDUCT DEBTS

If the physician's books are kept according to the "Cash Receipts and Disbursements" system, he may not charge off any unpaid debts because "if his books are kept according to this system, he is only reporting as gross income those accounts which have proved to be good and therefore bad accounts cannot be deducted because they have already been excluded."

If the books are kept upon an "accrual basis" (that is if the basis of expense actually incurred and payable

even though not yet paid, or income earned although not yet collected), it is permitted to charge off on the income tax blank all debts which have been definitely ascertained to be worthless, and charged off on the books or records, during the fiscal year covered by the report.

In the same way, the physician is permitted to claim deductions for all other expenses within the scope of his profession, and the amount of his tax is determined on the *net income* which remains after all these items *have been deducted.*

ITEMS NOT REPORTABLE AS INCOME

Allowances received under the War Risk Insurance act; bequests; damages received in personal actions; dividends on stock of federal reserve banks, land banks and intermediate credit banks; dividends from exempted building and loan associations up to $300; dividends from corporate earnings accumulated prior to March 1, 1913; gifts; inheritances; insurance proceeds paid by reason of death of the insured (where a policy matures during life the amount of the proceeds, in excess of the net premiums paid, is taxable income); state court jury fees; state court receivership fees, life insurance proceeds; and stock dividends.

All interest received from obligations of a state or political sub-division thereof; from securities issued under the Farm Loan act; interest on Liberty 3½% Bonds and U. S. Bonds issued prior to September 1, 1917, and interest on the obligations of the possessions of the U. S. need not be included in the computation of gross income.

Interest received on Liberty 4% and 4¼% bonds and Treasury 3⅜%, 3¾%, 4% and 4¼% bonds are exempt up to $5,000 aggregate principal. All interest received on such obligations in excess of $5,000 total holdings is reportable for surtax purposes. All interest received on U. S. Treasury notes (as distinguished from Treasury bonds), must be reported. However, all interest received from obligations of the United States, which is reportable as income, is subject only to the surtax.

EARNED INCOME

For several years students of income taxation have contended that income derived from the personal endeavor of a tax payer should not be taxed at as great a rate as is income derived from other sources. This fact is now recognized in the law which provides that the income shall be first computed in the usual way and then it shall be recomputed on the earned income as if that income were the entire income.

The term "Earned Income" means wages, salaries, professional fees, or compensation for services.

The first $5,000.00 of net income is considered earned income, no matter from what source derived. The 20 percent limitation placed on net income derived from a business where both capital and personal service are material income producing factors, is not applicable to physicians whose income is held to be directly attributable to their rendition of personal service. However, in no case may the earned income be considered to be more than $30,000.00

It is anticipated that the earned income credit provision of the law will create a great amount of confusion in the computation of tax and for the benefit of our readers an example applicable to the income of a physician is given below:

Net income from practice	$ 8,000.00
Net income from rents	500.00
Net income from sale of property	5,000.00
Total net income	$13,500.00

Taxpayer married with two dependents under 18 years of age.

COMPUTATION

Net income	$13,500.00
Marital exemption $3,500; dependent exemption $800	4,300.00
Subject to normal tax	9,200.00
First $4,000.00 subject to normal ½% tax	4,000.00
	5,200.00
Second $4,000 subject to normal 2% tax	4,000.00
Remainder subject to normal 4% tax	1,200.00
Normal ½% tax	20.00
Normal 2% tax	80.00
Normal 4% tax	48.00
Surtax 1% on net income in excess of $10,000.00	35.00
	183.00
Earned income credit (see computation below)	4.62
Total tax due	178.38

COMPUTATION OF EARNED INCOME CREDIT

Earned income (income from practice)	8,000.00
Exemption	4,300.00
Subject to normal tax	3,700.00
Normal ½% tax	18.50
Earned income credit ¼ of tax on earned income or	4.62

—Wisconsin Medical Journal.

UNDESCENDED TESTIS

In the Annals of Surgery, November number, Dr. Bevan describes his operation for undescended testis, which he has practiced for the past 30 years. He advocates its use at a much earlier age than formerly, in fact, any time after one or two years of age. The operation is tersely described, and consists of the transverse division of the vaginal process one inch below the internal ring, dissecting it up, and ligating it as the sac of an inguinal hernia, then stripping downward from the transverse division of the vaginal process the lower part and closing it with a purse string suture so as to leave it as the tunica vaginalis of the testis, and severing the fibrous bands which prevent the elongation of the cord, making a large pouch in the scrotum for the testis which is fastened in with a catgut purse string which must not be tight enough to endanger the blood supply of the testis. The wound is closed as an inguinal hernia with the cord at the deepest point in the wound. The entire article is well worth a careful study.

PERFECTED POISON FOR RATS ANNOUNCED

The U. S. Department of Agriculture announced recently the discovery of a rat poison that is almost ideal. The preparation is made from powdered red squill. It is said to have elements of safety to human life and domestic animals, economy and effectiveness that other preparations do not possess. We quote:

The value of red squill as a rat poison has been known in Europe for many years, but only within recent years has this plant substance been developed for that purpose in this country.

Grows Wild

There are two varieties of squill that are used commercially—white and red. The white squill is used in human medicine and the red is used as a rat poison, being a specific poison for rats.

For several seasons the United States Department of Agriculture, through its bureau of Biological Survey, Chemistry and Soils, and Plant Industry, has been working to develop a potent red-squill preparation for the effective destruction of rats, and it presents the results of this work in a new bulletin "Red-squill Powders as Raticides," Technical Bulletin No. 134-T. Red squill, says the bulletin, is an almost ideal rat poison, being relatively safe, economical, and effective, and these are requirements which the raticides in most general use today—arsenic, barium carbonate, phosphorus, and strychnine—do not so fully meet.

Safe for Pets

The investigators concluded from their studies that powdered red squill is toxic to rats but that while squill is not; and that to cats, dogs, chickens, and pigeons red squill is nontoxic under normal conditions when exposed in the concentrations recommended for rat poisons, as shown by the fact that food poisoned with squill either was not eaten by these animals, or, if eaten, was promptly vomited.

One method of preparing red-squill powders that yielded a more toxic product than others is described in detail in the bulletin and is recommended for commercial use.

This report is of special interest to pharmacologists and manufacturers of raticides, as it gives basic information for the further development of red-squill preparations, and making available to the public a rat poison that can be safely used in places where the use of other poisons has proved too dangerous to human life and domestic animals.

The publication may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents per copy.

EXTRINSIC NERVOUS CONTROL OF LARGE BOWEL

A. J. Carlson, Chicago (*Journal A. M. A.*, Jan. 11, 1930), has investigated this problem in dogs and monkeys. He is convinced, on the basis of many experiments, that vagus efferent fibers do not reach or influence the large bowel in the dog, but vagus motor fibers seem to reach the cecum and the appendix in a small region of the large bowel, close to the cecum in the monkey. The vagus motor and inhibitory fibers reach and influence the whole length of the small intestine in the dog, not through the wall of the intestine but by the way of the mesentery connections. Stimulation of the peripheral end of the hypogastric nerves has opposite effects on the ascending and transverse colon. If this portion of the colon is relatively atonic at the time, the stimulation induces a powerful contraction of both the circular and the longitudinal musculature. On the other hand, if this portion of the intestine is in a fair degree of tonus or rhythmic contractions at the time of the stimulation, the tonus and motility are inhibited. Irritation of the sacral sympathetics in the dog produces a motor effect on the circular and longitudinal musculature over the entire large bowel. This region, instead of having no motor innervation, has a double motor innervation (sacral and hypogastric).

KIDNEY FUNCTION IN MORPHINE ADDICTS

Of 177 patients admitted for acute and chronic morphinism, Robert S. Ackerly, New York (*Journal A. M. A.*, Jan. 11, 1930), found that 174, or 98.4 per cent., showed no signs or symptoms of nephritis or kidney dysfunction. Seventeen, or 9.6 per cent., showed urine containing albumin, casts or red blood cells, but nine of these had diseases that might explain the finding in the urine, and none of the seventeen had signs of urinary dysfunction; eleven patients had albumin and casts; four patients had albumin, casts and red blood cells, and two patients had red blood cells and casts. Three patients, or 1.6 per cent., of 177 exhibited signs, symptoms and a urinalysis pointing to nephritis clinically; one of these had a floating kidney, and one was presumably a cardiac patient. There is no evidence to show that there is a constant relationship between the administration of morphine and the manifestation of kidney dysfunction. Morphine should therefore be used whenever indicated without fear of renal complications secondary to its use.

PRACTICAL ACCURACY AND CONVENIENCE IN TRIAL LENSES

In 1878 the sixth section of the American Medical Association, devoted to diseases of the eye, ear, nose and throat, was established and Herman Knapp was chairman. In 1879 the first meeting was held at Atlanta, Ga. From that time to this say Edward Jackson and Donald H. O'Rourke, Denver (*Journal A. M. A.*, Jan. 11, 1930), the trial case and its use have never been the subject of a paper, or discussion, before the section. Their paper is devoted wholly to the problem of the practical accuracy of such lenses; the obliquity of glasses to light; the size of lenses; trial frames; supplementary lenses, and lenses needed in the trial case.

Original Articles

INTERDEPENDENCE OF THE ADRENALS, THE THYROID GLAND AND THE SYMPATHETIC NERVOUS SYSTEM WITH CLINICAL APPLICATION*

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INTRODUCTORY NOTES

It is a great pleasure to meet the members of the North Branch of the Chicago Medical Society and to offer for discussion a conception of the interrelating functions of the adrenals, the thyroid, and the nervous system which is based upon the Bipolar Theory of Living Processes. As the months pass and additional researches are made, evidence in support of that theory accumulates. Before offering the thesis of this evening's discussion I should like to state that the evidence, upon which the statements I shall make are based, has been accumulated through many years of experimental researches in my laboratories at Western Reserve University and Lakeside Hospital, and at the Cleveland Clinic Foundation. The physical measurements which have been in progress for the past 11 years have been subjected to most rigid scrutiny. Dr. Hugo Fricke, who in our laboratory developed the formulae for and measured the thickness of the membrane of red blood corpuscles is a well-known mathematical physicist. Dr. R. Beutner, of the University of Louisville, has scrutinized our methods and has himself, in our laboratories, added valuable information regarding the relation between the stainability of cells and the electric potential. Professor Dayton C. Miller and Professor W. R. Veasey, of the Case School of Applied Science, are consultants of our research department and have examined our methods and studied our measurements and have given them their approval. The measurements upon which special stress will be laid tonight have been made in our laboratories by Dr. Maria Telkes, Miss Amy F. Rowland, and Miss Helen H. Douthitt. These researches are still in progress, but it appears to us that sufficient evidence has accumulated to submit these findings and our conclusions therefrom to you.

The nervous system may properly be considered as including not only those organisms and structures generally included in the central and vegetative nervous systems but also the adrenal and the thyroid glands since the latter together with the former control the adaptive energy transformation of animals. Adaptive energy transformation is the one outstanding factor that distinguishes the plant from the animal. An animal may be regarded, therefore, as a higher plant to the equipment of which has been added a mechanism for adaptive energy transformation, that is, the transformation of potential into kinetic energy, i. e., in animals may be considered a motorized plant. I still think this system may not illogically be designated as a "kinetic system."

The most outstanding and unique example of a continued activation of this group of organs which results in continued increase in energy transformation is a state of hyperthyroidism—more appropriately designated "hyperkineticism."

In hyperthyroidism not only is there a continued increase of energy transformation but from time to time there appear crises during which the transformation of energy is temporarily increased still further. I propose to discuss the nature of these thyroid crises and their exciting causes, the mechanism that produces them, their peculiar setting, and the factors that govern them, and to offer evidence in support of the conception that hyperthyroidism is not primarily a disease of the thyroid gland but is rather a disorder of the entire kinetic system as defined above. In a thyroid crisis the organism is driven so intensively and its functions are so magnified that the crisis serves as a physiologic microscope through which are revealed more clearly certain functions of certain organs.

The clinical analysis of a thyroid crisis shows that it can be precipitated by any one of only eight factors, six of which are intraorganic, that is, originate within the organism itself—while two may be applied artificially. The six inherent factors are (a) emotional excitation, such as fear, anger, worry, etc., (b) foreign and split proteins, such as infection, wound secretion, etc., (c) asphyxia, (d) hemorrhage, (e)

*Read at a meeting of the North Side Branch of the Chicago Medical Society, March 6, 1929, Chicago.

pain, (f) physical exertion. The two artificially produced factors are (a) the induction of inhalation anesthesia, and (b) the injection of adrenalin.

Whether the crisis be precipitated by a single one or by several of these factors, or whether the crisis occurs merely in the natural course of the disease, the symptoms, and in fatal cases the mode of death, are identical. There must be, therefore, some common cause which is activated by these divergent exciting conditions. What common factor in asphyxia, hemorrhage, physical injury, physical exertion, emotional strain, infection, is responsible for the thyroid crisis? Exclusive of the injection of adrenalin each of the factors enumerated above produces an increased output of the specific hormone of the adrenal glands, as has been proved by the researches by Cannon and others as well as by ourselves which have shown that the adrenals are activated by every activation of the central nervous system.

Moreover, it is significant that no other natural factor such as rest, sleep, food and water, heat or cold, and no drug such as a sedative, a narcotic, digitalis, strophanthin, atropin, sodium bicarbonate and glucose, a cathartic, calcium or magnesium, can produce a thyroid crisis. Even the injection of iodin or of thyroid extract can not produce a thyroid crisis. Moreover in the absence of the thyroid gland or when after thyroidectomy hyperthyroidism has been replaced by myxedema, each of these specific excitants loses its effect. In the absence of the thyroid gland or in myxedema the injection of adrenalin loses its specific effect. A thyroid crisis under such conditions cannot be produced even though any of these factors may destroy the organism and produce death.

The symptoms of hyperthyroidism and of the crises of hyperthyroidism are identical with the symptoms of hyperadrenalism—dilated pupils, flushed skin, sweating, increased metabolism, increased action of the heart. The injection of adrenalin of itself alone produces these symptoms, and each of these symptoms is present in hyperthyroidism; the injection of adrenalin in the presence of hyperthyroidism causes an increase in every one of these symptoms. These symptoms in themselves betray the intermediary between the adrenals and the thyroid gland. The adrenals act through the nervous system upon the thyroid gland; the thyroid gland acts through the nervous system upon the adrenals—each of these three depends upon the other two. It is for that reason that we consider these ductless glands as being inherent parts of the nervous system itself.

Further evidence that neither the nervous system, the adrenals, nor the thyroid gland can be considered alone is found in the following facts: (a) Hyperthyroidism has never been seen in a case of Addison's disease, (b) the excision of one adrenal gland temporarily lessens the symptoms of hyperthyroidism to a degree comparable to the removal of one lobe of the thyroid gland, (c) in myxedema, adrenalin loses most of its physiologic effect, (d) deep narcotization with morphin nullifies the effect of adrenalin, (e) no case of hyperthyroidism has been observed in a cretin or in the presence of a normal thyroid gland, (f) the division of the innervation of the thyroid gland cause a marked control of the disease, (g) physiologic rest profoundly benefits a patient with hyperthyroidism, (h) excitation of the nervous system is the most potent cause of the disease and of the crises of the disease. Finally, each of the six specific factors enumerated above which may cause a crisis of hyperthyroidism are also common exciting causes of the disease. These six factors produce their protean effects primarily by activating the nervous system which in turn activates the thyroid gland and the adrenals. One might as well try to separate the nucleus and the cytoplasm of a cell, or the negative and positive plates of a battery and expect either to operate alone as to expect the adaptive transformation of energy to continue in the absence of the nervous system, the adrenals, or the thyroid gland, each of which is an essential part of the organic machine.

It would seem more profitable to identify and study the energy-transforming system as a whole, and to find some new designation for the disease, rather than to relate it to a single organ which does not originate the disease but only collaborates in its origin and in its continuation.

The outstanding characteristic of hyperthyroidism is the facilitation and acceleration of the production and discharge of potential energy through the collaboration of a definite group of organs. As the result of this acceleration the

energy-transforming system is speeded up, and for this reason I believe that a better term than hyperthyroidism to apply to the disease would be "hyperkineticism." This name does not assume that we are in possession of all the factors involved in this protean disease but that it would seem more descriptive than our present term.

Let me now offer certain experimental evidence as to the inter-relation of the nervous system, the adrenals, and the thyroid gland.

Years ago we found that the administration of iodin or of thyroid extract produced an early hyperchromatism of the brain cells followed by progressive chromatolysis. The administration of a single dose of adrenalin produced hyperchromatism of the brain cells; the repeated administration of adrenalin was followed by chromatolysis of the brain cells. Significant as these findings were they have become increasingly so as the result of investigations now being made in the laboratories of the Cleveland Clinic by Dr. Beutner who has found that the stainability of cells is apparently a direct indication of their electromotive force or potential. Dr. Beutner is investigating this point by the construction of certain artificial systems consisting of organic substances, which react to different stains like the hyperchromatic and hypochromatic brain cells in our experiments and produce an electromotive force which varies with the stainability as we have found the electromotive force of a tissue to vary with its stainability.

Since iodin is the essential content of the product of the thyroid gland, and in view of the specific effect of this product on metabolism, we would suspect that it governs the electric permeability of the cells of the body. In our researches we have found that after a latent period of 12 or more hours, iodin and thyroid extract each increases the electric conductivity and capacity of the organs and tissues of the body, in particular of the brain. In physical terms the change in the conductivity and capacity of a tissue signifies a change in the activity of that tissue. These physical changes, like the clinical changes due to thyroid activity, are lasting and not fleeting. Increased conductivity and increased capacity are associated with increased functional activity. These changes alone would increase oxidation hence would increase basal metabolism.

These findings are comparable to those in similar physical measurements of plants, of growing tumors, of fertilized ova, of the ameba, etc. It may be urged that what we have measured is a change in the concentration of the electrolytes in the tissues and cells or changes in blood supply. It is true that the changes in conductivity and capacity which we have measured are in part due to changes in electrolytic concentration, but changes in electrolytic concentration constitute an essential part of the mechanism of stimulation and appear coincidentally with changes in the permeability of the cell membranes. Moreover, in our experiments, changes in conductivity and capacity have been found in tissues after death, when such changes must be independent of the circulation. These electrical changes run parallel with the clinical phenomena.

Our experiments have shown that the effect of adrenalin on the capacity and conductivity of tissues and organs is wholly different from the effect of thyroid extract and of iodin; that is, while the effects of thyroid extract and of iodin are not manifested until after a considerable latent period, adrenalin causes an immediate and a striking change in capacity, temperature, and conductivity. Moreover, the effects of adrenalin last for only a few minutes while the effects of thyroid extract and of iodin last for hours and days.

The most striking characteristic of the adrenalin effect, however, is its unexpected selective action on the organs and tissues of the body; that is, adrenalin causes a sharp rise in the conductivity, temperature and capacity of the nervous tissue, but shows the opposite effect on the conductivity, temperature and capacity of all other tissues, with one notable exception,—namely, the medulla of the adrenal gland itself. At first this highly selective action of adrenalin on the tissues and organs seemed incomprehensible until it occurred to us that differences in the potential of the organs of the body might well depend on this very effect.

We would expect that iodin and thyroid extract would raise the potential of the cells, and experiments performed in our laboratory have proved such to be the case. If iodin or thyroid

extract increases the capacity of the cells and also the electric load of the cells then we would expect that the adrenal and the nervous system would discharge the cells—would diminish their potential—and our experiments have indicated that this is the case.

As a result of our experiments it would appear that the organism has been evolved on the principle of electric control, and that it is the function of the adrenal glands and of the vegetative nervous system to establish and to maintain and adaptively to change the differences in potential among the different organs and tissues, in order to meet the conditions of struggle and survival, such as fighting or escaping, mating and procreating, combatting infection, etc. If this conception be true, then not only is there a collaboration between the adrenals and the thyroid but there is a collaboration among all of the organs and tissues which are concerned not only with the struggle of life but with the maintenance of life itself. In accordance with this conception, if we were to measure the difference in potential between various organs and a neutral tissue such as fascia, we would expect to find that during life and consciousness a certain difference exists and that at death this difference is cancelled. We would expect to find that adrenalin would specifically alter differences in potential in the normal animal and that in myxedema it would exert but little effect on the difference in potential. We would expect that alterations in potential would be related to the physiologic activity of the various organs; and that the activity of the organs would be related to the thyroid hormone, which controls the conductivity for the longer periods, and to adrenalin, which controls the conductivity for shorter periods. These theoretical assumptions have been proved to be facts by the experiments performed in our laboratory by Dr. Telkes and Miss Rowland.

We may assume that the thyroid hormone by increasing the permeability increases the activity of the cells and organs, of the brain, in particular. Increased permeability would make more effective every kind of stimulation. This would be one of the essential factors of nervousness—perhaps the mechanism by which it is produced.

In myxedema, on the other hand, the conductivity, capacity and potential are decreased far below the normal level; and in consequence, the permeability, hence the facility of stimulation is decreased proportionately. This would explain the decreased metabolism, the depressed facility for stimulation and the decreased bodily activities—dullness and lethargy—in clinical cases of myxedema. And as a climax to these observations we have found that when an animal is in myxedema, adrenalin has lost its striking control over the conductivity, capacity and potential—a finding which parallels the clinical observation of the lack of effect when adrenalin is injected into myxedematous patients.

Moreover, and of peculiar significance, has been our discovery of a specific reaction of the medulla of the adrenal gland itself to the injection of adrenalin. We have found that the injection of adrenalin into the vein of the ear of a rabbit causes a sharp rise in the conductivity and the capacity of the medulla of the adrenal—this effect being as striking as the effect of adrenalin on the brain, and in the same direction. It would appear from this finding that the medulla of the adrenal functions as nerve tissue; perhaps it is the brain of the vegetative system, its probable function being to charge up—to energize the vegetative system. The embryologic origin of the medulla, the type of its cells and the kind of tumors that arise in it, all point to the same inference.

In his illuminating work on the adrenal gland and his interpretation of its function along the lines of evolution which were referred to in my Ether Day address, Cannon surely took an important step in the direction of this conception.

If we are correct in our belief based upon clinical and experimental investigations that the single agent which causes the acute exacerbations of hyperthyroidism is the adrenal gland, then it would follow that by the removal of one adrenal gland in cases of hyperthyroidism, the factor of safety of the patient should be increased, that is, the removal of one adrenal like the removal of one-half of the thyroid gland should deduce the phenomena of hyperthyroidism. It may at once be objected that the factor of safety of the adrenal tissue is so great that the removal of one adrenal would show no effect. In normal cases this would be true, but in hyperthyroidism, the adrenal, like the thyroid, has had its factor of safety fully taken up by ex-

cessive action and one would expect, in accordance with our conception at least, that by the removal of one adrenal, as by the removal of half of the thyroid gland, the hyperthyroid phenomena would be correspondingly reduced.

We have removed one adrenal gland in ten cases of hyperthyroidism, and in those ten cases the immediate clinical results were comparable with those which follow the removal of one lobe of the thyroid gland. The pulse rate was lowered, the nervousness, sweating and weakness decreased, the lost weight was regained, the untouched thyroid gland diminished in size and grew firm in texture, as after a successful ligation or a successful rest cure; and of equal significance, although the operation was much more severe and of longer duration than a thyroidectomy, there was but little postoperative reaction, that is, little so-called postoperative hyperthyroidism. And why should this not have been the case, for according to our point of view, part of the electric generative plant of the vegetative nervous system was removed? The result of this procedure was not as lasting as after the removal of one lobe of the thyroid gland. This evidence is too meager to be conclusive and is offered only as so much evidence in favor of our general thesis.

How interesting that the symptoms of hyperthyroidism are so completely "adrenal" in nature. The driven heart, the activated nerves, the increased metabolism, the sweating, the vasomotor instability, the dilated pupils, the increased pulse pressure, all of these show a sensitization due to adrenalin. What is accomplished so strikingly by merely cutting off the sympathetic nerve supply to the thyroid gland may apparently be achieved on a much greater scale by the removal of one of the generators instead of by merely severing some of the feed wires.

The thyroid is governed, at least largely, by its innervation; innervation is regulated largely by the adrenals; the adrenals are controlled by the brain and nerve centers, although chemical activity probably plays a role. The thyroid certainly cannot originate hyperplasia, the thyroid has hyperplasia imposed on it; the adrenal glands cannot stimulate themselves, stimulation is imposed upon them; the nerve receptors cannot engage in self-excitation, excitation is imposed on them by the physical and chemical forces of the external and internal environment. The entire nerve mechanism, the adrenals, the thyroid, and in a secondary sense other ductless glands, act reciprocally; that is, nerve tissue, the adrenals and the thyroid tissue collaborate in a stepping-up process—a stepping up of activity. In certain individuals, because of some previously existing unknown factor, some chemical or physical unbalance, the normal controls become inefficient or are lost—and a reciprocal excitation continues after the environmental excitation that initiated the activity has ended.

The thesis which we have presented is supported not only by laboratory findings but by clinical observations. The patient with hyperthyroidism and the patient with myxedema together present conclusive evidence of the interrelation—interdependence—which we believe to be present among the adrenals, the thyroid gland, and the nervous system. Any theory regarding the operation of the human mechanism must stand or fall according to the evidence offered in the clinic. The patient presents the final criterion as to the value of laboratory evidence. On that criterion we are prepared to rest.

CLINICAL INVESTIGATION AND THE PRACTITIONER OF MEDICINE*

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CHICAGO

Since the earliest times the chief advances in medical knowledge have come from those who were actively taking care of the sick. The Egyptian physicians of the second century before Christ had a knowledge of clinical surgery which was passed on to the Greeks who also described arthritis deformans, trachoma, and various parasitic infections. They were familiar with many therapeutic agents, some of which were used with intelligence and discrimination by Hippocrates and his disciples. The inhabitants of Asia Minor and the Eastern European countries of this and earlier periods were versed in medical matters, though oftentimes superstition modified the type of treatment and the methods used. As a matter of fact there are in our medical vocabulary many terms that can be

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traced to the languages of prehistoric peoples of the Eastern Mediterranean.

Greek medicine, which was at its height in the time of Hippocrates about 400 B. C. Aristotle (384-322 B. C.), gave to medicine the beginnings of botany, zoology, comparative anatomy, embryology, teratology, logic, and taught anatomy by dissection of animals. After this, there was a Greco-Roman period which did not add much to medical knowledge, but furnished two writers, Celsus and Galen, from whose works most of our knowledge of ancient medicine is derived. Galen, in addition to being a writer, was the first experimental physiologist and made numerous contributions to our knowledge of the physiology of the nervous system and of respiration. He was also a clinician and differentiated pneumonia from pleurisy, first described aneurysm, and differentiated between the traumatic and the dilated form and wrote extensively on phthisis and its treatment by diet and climatotherapy.

After Galen came the Dark Ages in Medicine as well as in learning and culture. Hospitals and sick nursing had their inception during this period. With the Renaissance came Linacre, who translated Galen and gave his works to the physicians of the 15th century. Paracelsus taught physicians to substitute chemical therapeutics for alchemy and the "four humors" of Galen. Leonardo da Vinci, the great artist and scientist, was the foremost anatomist of his time and was the originator of cross-sectional anatomy. Vesalius at the beginning of the 16th century, really made anatomy a living science and in so doing made the greatest contribution to medicine between the time of Galen and Harvey.

Then comes the 17th century and with it William Harvey and the discovery of the circulation of the blood. Like many of the research workers of today, Harvey was an indifferent practitioner who lost much of his practice when he published "De Motu Cordis." Most of the other advances during this period were in anatomy, though de Graaf did some important work on the physiology of digestion.

In the latter half of the 17th century internal medicine took a new turn because of the work of Sydenham, who revived the Hippocratic methods of observation. He regarded disease as a developmental process, running a regular course, with a natural history of its own, and believed that scientific theories were of little value to the practitioner since at the bedside he must rely on his powers of observation and fund of experience. He described accurately the malarial fevers, scarlatina, measles, broncho-pneumonia and pleuropneumonitis, dysentery, hysteria, gout and chorea. His description of gout is one of the classics of medical literature. Sir Thomas Brown, who wrote Sir William Osler's favorite book "De Religio Medici," was a contemporary of Sydenham.

In the 18th century medical knowledge began to increase by leaps and bounds. Boerhaave taught chemistry, physics, and botany as well as bedside medicine, and gave the first special course in ophthalmology. Haller founded modern physiology. Hales devised the first manometer. Hewson contributed to the knowledge of the physiology of the blood. Black, Priestly, and Lavoisier added greatly to the knowledge of physics and chemistry, particularly with respect to oxygen and carbon dioxide and their interchange in the lungs. The Monros of Edinburgh made that city famous as a medical center, particularly for the teaching of anatomy. Wolff started the science of embryology. Smellie first used a manikin in the teaching of obstetrics. William Hunter was a famous anatomist and obstetrician and his brother, John Hunter, who put surgery on a scientific basis and was a great teacher, was the first English surgeon to compare with the French. Percival Pott who described Pott's fracture and Pott's disease was also a leading surgeon. Auenbrugger was the first modern to describe percussion as a method of physical examination, though his work was not generally appreciated till years later when Corvisart took it up. Morgagni introduced the anatomical idea into medical practice. Matthew Baillie, the last inheritor of the "Gold-headed Cane," was among the first to attempt to correlate post mortem and clinical findings. And then we come to William Withering, who first used digitalis in the treatment of heart disease. His "Account of the Fox-glove" is a pharmacological classic. Heberden, who described the well-known nodes on the fingers in arthritis, was also a leading clinician. And there was Edward Jenner, whose classical experiments proved the

value of vaccination in the prevention of smallpox, a disease so prevalent in those days that it was said that "everyone fell in love and had the pox."

Some American names come into prominence for the first time during the latter part of this century. John Morgan, T. Cadwalader, William Shippen, and Benjamin Rush of Philadelphia, John and Joseph Warren of Boston were probably the best known physicians of the country prior to 1800.

During this century many syndromes were carefully described and their diagnosis made possible, though their etiology was, of course, not understood and little was known regarding their management. In many instances there is little more known today than there was at that time. For example, Heberden's nodes are generally recognized, but their eitology is an open question.

With the 19th century came tremendous advances in all branches of science. In medicine the French school, Broussais, Chomel, Louis, Laennec were most prominent during the first half of the century. Louis did much accurate work in pulmonary tuberculosis and differentiated and named typhoid fever. He also brought forward the importance of good statistics as instruments of precision where proper experimental methods are wanting. Laennec invented the stethoscope and was an expert pathologist and clinician. He correlated the signs elicited by percussion and ausculatation with the underlying pathological anatomy, and as a result was able to differentiate various types of pulmonary and cardiac disease. Percussion had been brought into prominence by his contemporary, Corvisart, who had revived Auenbrugger's work. In Ireland at this period we find Cheyne and Stokes, whose names are associated with a type of respiration; Adams, who described heart block; Graves, who described exophthalmic goiter; and Colles, Corrigan, and Wallace, who introduced potassium iodide in the treatment of syphilis.

In England, Richard Bright, who differentiated renal and cardiac edema and described essential nephritis, Addison who described pernicious anemia and Addison's disease, and Hodgkin and Parkinson were the chief contributors to medical knowledge. Wunderlich was the real founder of clinical thermometry and Skoda made contributions to our knowledge of percussion and ausculatation.

Rokitansky did monumental work in pathology, especially of the heart and blood vessels. In the United States Oliver Wendell Holmes proved the contagiousness of puerperal fever in an essay presented in 1843, which was confirmed by Semmelweiss five years later. Long first used ether anesthesia about 1842, but as he did not publish any account of this work, the credit for its discovery goes to Morton, Warren and Bigelow, whose experiences with the drug were published in 1846. Wells started using nitrous oxide at about the same time. Drake, Beaumont, the Jacksons, and Mitchell were other prominent physicians of this period. Beaumont's work on the gastric secretions made possible by the injury to Alexis St. Martin was the first great contribution of American medicine to the world. McDowell and Sims must also be mentioned.

During the latter half of the nineteenth century developments were so rapid and contributors so numerous, that it is impossible to even name all of the more important ones in the time at our disposal. The publication of Virchow's "Cellular Pathology" in 1858 marked a new epoch in medicine. It was followed in a short time by the discovery of bacteriology by Pasteur, and its application to surgical procedure by Lister, and to the etiology of disease by such men as Koch, Loffler, Klebs, Welch, Flexner, and Vaughan. Surgeons became more prominent with the development of antisepsis and such names as Billroth, Esmarch, Paget, Hutchinson, Horsley, Gross, Fenger, McBurney, Park, Fitz, Tait, Kelly, Simpson, Fuchs, stand out. In medicine, Trousseau, Traube, Kussmaul, Nothnagel, Naunyn, Ewald, Muller, Albutt, Osler, Davis, DaCosta, Billings, Bowditch, Cabot, Jacobi, Charcot, Marie, Jackson, Mitchell, Brunton and Hare stand out. It was during this period that Darwin, Huxley and Mendel brought out their epoch-making researches in biology which are so important in medicine. In physiology there were Helmholtz, Claude, Bernard, Ludwig, and many more. In physiological chemistry were Hoppe-Seyler, Salkowski, Kossel and others.

Since the beginning of the 20th century there have been further advances in medicine, for the most part due to the work of men who were devoting their whole time to investigative work

in the non-clinical branches. There has been a tendency on the part of those in active practice to relegate the major portion of this work to men who are working in pure science, and confine their own activities to the treatment of the sick and applying to clinical medicine such of the results of research in pure science as have a clinical aspect. It is true that it is up to the pure scientist to solve many of the problems that remain unsolved. Such problems as the development of speecific therapeutic agents must, however, have the cooperation of the clinician. The etiology of the acute or chronic infectious diseases whose cause is still unknown will probably be solved in the laboratory.

But our most important problem today seems to be with diseases of a different sort, the diseases that come with advancing years, cancer, cardiovascular-renal disease, diabetes, and the like, all chronic conditions regarding the etiology, life history, and treatment, of which little is known. What is known about the treatment of diabetes is the result of investigation in dietetics by clinicians such as Naunyn, vanNoorden, Joslin, Woodyatt, the discovery of insulin by Banting and Best and its application as a therapeutic agent by the same group of clinicians. But the problem of diabetes will not be solved completely until we know more of its early symptoms, its cause and its complete history and these are aspects on which the medical profession has been working since the days of ancient Hindu medicine, eight to ten centuries before Christ.

Cancer has also been studied for many centuries and yet we are almost as much in the dark as to its cause and early symptoms and treatment as we ever were. The cardiovascular-renal group are relatively new, especially those cases in which arterial hypertension is an important physical finding. The hypertensive states are new because the general use of sphygmomanometry is scarcely twenty years old. How can the laboratory worker, the consultant, who as a rule sees only well-developed disease conditions, or the teacher who restricts his work to hospital and out-patient clinics, learn about the early symptoms of such diseases unless by analogy with findings in experimental animals whose life history is perhaps three score months and ten instead of three score years and ten?

The time seems to have come when the medical profession must undertake investigation based on careful observation which was emphasized by Hippocrates and Sydenham, combined with the statistical method brought out by Louis. It will be almost impossible for one clinician to gather sufficient data to solve one of these problems in any or all of its various aspects, therefore these problems should be undertaken by the members of the profession working in cooperation.

Of course, Mackenzie was able to learn a great many facts about heart disease and prove them to the medical world without going beyond the patients that presented themselves in the course of his practice in Burnley. There is no good reason why others cannot do as much in connection with other diseases.

However, whether these problems are to be solved on an individualistic or on a cooperative basis, accurate and detailed records that will be intelligible to any physician must be made. Such records should include complete family histories, including parents, grandparents, and when possible great grandparents, aunts, uncles, cousins, brothers, sisters, and children. In addition to cause of death, such family history should include habitus, occupation, and anything else that is being considered with respect to the problem in question. It should include a most detailed medical life history, the results of physical examinations during health as well as during illness and a definite diagnosis of any and all illnesses.

Such records will, of course, be of no value to anyone if they are to be destroyed when the patient moves away, or dies, or when the physician making them dies. This is where the need of cooperative work enters the picture. There should be some clearing house to which all such records could be sent. A summary, even one on a printed form, might give all the information needed, if the problem were the relation of heredity, habitus, and previous illnesses, occupation or habits of eating and living to the etiology of cancer, but if the problem were the onset and early symptoms and physical findings in hypertensive cardio-vascular-renal disease, such a tabular record would hardly suffice.

A medical school might establish a department of clinical research and educate its alumni

to send to it all such information and so cooperate in solving any or all of these perplexing problems. A heavily endowed foundation might be able to get the practitioners to cooperate with it in a like manner. But would not an organization such as the Section on Medicine of the Illinois State Medical Society, an organization of practicing physicians, be the logical unit to carry out such cooperative research work? The Section on Medicine of this Society would not be able to undertake the solving of all of the problems in connection with the diseases mentioned at one time. They could, however, take them up at a time if similar organizations in other societies did not cooperate by taking up the other problems or other aspects of the same problem.

To undertake such work, the Section would have to have in addition to its present officers, a standing committee on clinical investigation of three to seven members, that would determine the exact problem to be undertaken, and the modus operandi. This committee would have to study all the records or questionnaires submitted, correlate and report the results. To succeed they would need the wholehearted cooperation of all of the physicians in the state who see patients with the disease being studied. To obtain this and promote the work it might be well for the small standing committee to have auxiliary members in each of the constituent county societies and in each of the branches of the Chicago Medical Society, who would serve as liaison officers and more particularly as promoters to keep the men in their district interested in the work.

Cooperative research by physicians through an agency controlled completely by physicians, should accomplish more for the advancement of medical knowledge, particularly with respect to the pathological conditions that seem to arise with advancing years, than any other type of investigative work.

In order to bring this matter up for formal discussion, I move that a committee of three plus the Chairman and Secretary, ex-officio, be appointed by the incoming chairman to consider the advisability of the Section on Medicine of the Illinois State Medical Society undertaking cooperative clinical investigation, the problem to be undertaken and the methods to be used, and that this committee be given power to start putting their plan in operation if they deem it advisable.

952 North Michigan Avenue

DISCUSSION

Dr. R. O. Stites, Industry: I wish I was a Methodist so I could say amen to everything Dr. Davis has said.

I have enjoyed the section on Medicine this year very much because it has been the most conservative program that I have ever attended. I went to the section on Public Health and it was not quite so conservative. They made the statement down there that eighty-five per cent of the school children in Chicago were defective. I asked them what the defects were, how hurriedly they made the examination and what they were going to do about the most of them.

If it was like the statement of the U. S. Army about our soldiers, most of it was useless to enumerate. You know the statements that went over the country about how defective our soldiers were. I, being on the field, know that most of the defects of the soldiers as listed, could not be remedied anyway. All flat feet were defective. How are you going to correct that anyhow? If their teeth were out and they would not hold the gas mask, they were defective. How are you going to correct that when lower plates are always loose? I remember when I was the last inspector, in picking out the men before they went to the front for combatant troops, that the short noses and the flat noses were defective, if the nose could not hold a gas mask. How are you going to correct that? I remember many with long backs, weak small legs and ankles, who could not carry sixty pounds on a march. They were defective. What are you going to do about that? I remember one fellow was ready to go into the thick of it and he had an old electrical burn on his forehead, his gas mask would not fit properly. He was defective. What are you going to do about that?

That statement about the deplorable condition of Chicago children, is going to get wide circulation and it is going to do harm to Chicago and the Nation. I am ignorant how that terrible condition was arrived at, but according to that statement, those of us who have four children, three of them are defective and a portion of the fourth one also. If their defects can be remedied, by all means mention it, but if not, why mention it at all. I am sure that most of them are just some slight temporary affair and that the others are family or so-called stock characteristics, that cannot be remedied or corrected and would have no value to the child if they were.

Dr. L. D. Snorf, Chicago: I think that we as the younger group of physicians get the impression that the medicine we know is probably the last word. And it takes just such a recapitulation as Dr. Davis has made here this morning to give us

an appreciation of the really marvelous work that has been done over the past centuries.

Someone has said, "Of course, any man who begins reading and writing medical history is admitting his age." I do not know that that applies to Dr. Davis, but it seems to be rather generally accepted that men as they get older go into the discussion of medical history. The reason for it is that as we get along a little more in age and experience we do appreciate to a greater extent the classic work that has been done by such great men as Davis has mentioned.

His discussion of the historical events is more of a preamble to the statement that he later made in the form of a motion.

Mackenzie, of course, was an outstanding character of a man who did research in the home,—the man who did extensive research to the extent that he was able to write a book that has few equals. We are inclined to think too often of research as a thing coming out of a laboratory, say a man who has no clinical contact, but if we can make use of our experiences that we have in everyday practice, and those of you doing general practice, with such a tremendous fund of experience, if we will correlate that work, and as Dr. Davis suggested, put it down so that it will be at the disposal of others later on, it seems to me it would be a splendid thing. It is a splendid idea; something, at least, to try out.

Dr. N. S. Davis, III, Chicago: About the Chicago School survey Kegel spoke of. I have heard Kegel talk about that a lot. It is his favorite topic, and the defects are very much the same that were found in the army, the flat-foot, the postural defects, the tonsils, the crooked teeth, defective vision, defective hearing; some of these can be corrected. Some cannot be, and some of them are not of much significance.

But still it would be very interesting to be able to check some of these children up—ten, fifteen, twenty, thirty years from now, and see what relation the defects picked up during grammar school years may have on their life afterwards.

I have a younger brother who has not been well since early childhood, when he had had head colds, and some middle ear trouble, as I remember. Then he had a flu pneumonia during the War and since then has been in worse health, if anything, because of bronchiectasis. It has always been against my principles to take care of the family. He had seen various doctors in this country and Europe. They all thought there was bronchiectasis, but did not go into the cause particularly. He came out to Chicago a little while ago, feeling pretty well when he arrived, and then had a flare-up of his cold. From the looks of his throat, with the pus draining down either side, and a nice red streak down either side, I felt pretty sure there was something in one sinus or another. He had an x-ray and showed both maxillary sinuses completely cloudy and either the sphenoids or the ethmoids, I have forgotten which, also cloudy. They did a radical maxillary on one side and found a marked polypoid degeneration. Of course, that has been the basis of his trouble ever since he was a youngster. He was getting some drainage, and was not getting pain in his face, and nobody paid any attention to it. However, I have no doubt that for the last twenty-five years at least he has been below normal purely on account of that sinusitis. We will find that some of these children's defects will have the same affect on their health, I am sure.

Another thing, you get some cases that will have perhaps some carious teeth, bad tonsils, and maybe a deflected septum and hypertrophied turbinates, and if you come right down to it, while there are enough defects to include eighty-five per cent of the children, a lot of them really may be co-related.

I am very glad that the section on Medicine has adopted this suggestion of mine to have a committee consider what, if anything, can be done along this line, because I am more and more impressed by the fact that we know so little about the clinical history of some of these diseases.

For example, recently I had a case of fever that, as a matter of fact, the cause was undetermined until the patient was pretty nearly well. It looked like a typhoid, but he had a persistent negative Widal, slow pulse. We tried at the hospital to get a Widal, but we could not get one; we got negatives.

I was looking around for a good description of undulant fever, which is, after all, a relatively new disease, and you cannot find a description of undulant fever in the literature that tells a typical case history, apparently. At least, I have not been able to find it.

There are many syndromes, relatively new, of which you cannot find descriptions that compare at all with the descriptions of disease that were made fifty, or a hundred and fifty or two hundred years ago, when they did not have anything except what the patient presented. If the section on Medicine is able to get descriptions of diseases comparable with those made by the old clinicians, it would do a great deal to advance medicine.

STATE HEALTH DIRECTOR REPORTS ON THE SERIOUS SMALLPOX SITUATION IN ILLINOIS

ANDY HALL, M. D.

SPRINGFIELD, ILL.

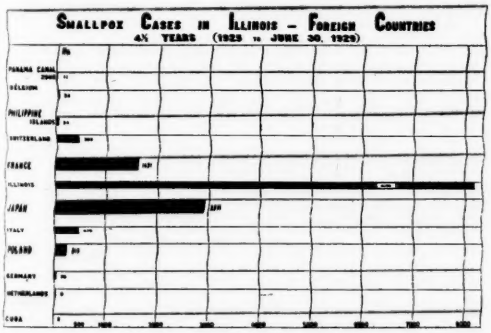
Illinois is now in the throes of one of its periodical and disgraceful experiences with smallpox. During 1929 no less than 4,251 cases of this filthy, loathsome disease were reported in the State. Prevalence in Illinois was greater by 1,100 cases than in any other state in the Union and greater by over 3,000 cases than the aggregate in France, Germany, Italy, Belgium, Neth-

erlands, Poland, Japan, Philippine Islands, Cuba, Switzerland, and Panama Canal Zone.

Health departments spent over $100,000 in efforts at controlling smallpox in Illinois during 1929 while the 4,251 patients together with an attendant on each spent an aggregate of 490 years in quarantine and seventeen people died. Since the United States entered the World War the 43,579 cases of smallpox which have occurred in the State have cost Illinois money enough to have built an 18 foot hard road from Danville to Quincy. As it is the money is gone and all we have to show for it are thousands of disfigured faces, numerous graves, a depleted pocketbook and the memory of no little grief.

Neglecting vaccination during childhood merely amounts to postponing that procedure for most people plus the grief and expense of enduring and fighting epidemics of smallpox. Nearly everybody undergoes the experience of being vaccinated sooner or later because that is the only way known to control smallpox.

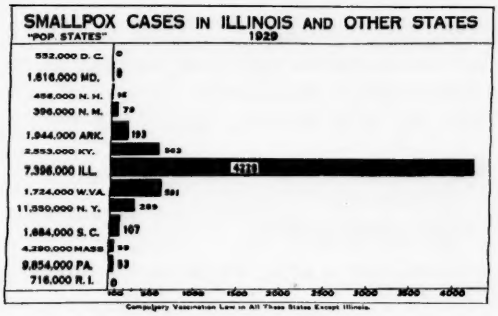
States that have and enforce compulsory vaccination laws are spared the periodic expense and trouble of combating smallpox epidemics. With three times the population, for example, New York and Pennsylvania had together less



than 350 cases of smallpox during 1929 against 4,251 in Illinois. The eleven states which have compulsory vaccination laws had together less than 2,000 cases of smallpox during 1929, a figure not one-half the magnitude of that representing the prevalence in Illinois.

The remedy in Illinois is a law making vaccination against smallpox compulsory and prohibiting unvaccinated children from attending schools, public, private or parochial. Under existing laws, not withstanding the vast amount of educational effort only 1 out of 10 downstate school children is vaccinated. In some schools one-third of the teachers are unvaccinated and not more than one per cent. of the pupils are protected against smallpox.

More students are in attendance on institutions of learning, other than public schools, in



Illinois than in any other state in the Union save New York. The State has six universities and 21 colleges which enjoy larger productive funds than those in any but three other states. Chicago is regarded as the medical center of this country and is by way of becoming the medical center of the world.

In spite of all this cultural and scientific attainment in learning Illinois has one of the worst and most disgraceful smallpox records in the world. Can it be that the taxpayers and the medical profession are satisfied with this record? Authority to do systematically and in good season what is now practiced sporadically and under pressure of emergencies is all that is necessary to eliminate smallpox as a problem in Illinois.

"THE A. B. C. OF THE ELECTROCARDIOGRAM"*

EMMET KEATING, M. D.
CHICAGO.

We are all aware of the fact that one of the greatest problems in the treatment of heart disease is the ability to know when we are dealing with heart disease, or when we have a condition that simulates heart disease.

I know of no condition which has as much interest as the study and treatment of the heart, and one of the reasons that it has so great an interest is because it involves such a wide field.

*Read before Section on Medicine, Illinois State Medical Society, Peoria, May 21, 1929.

The man who successfully treats heart disease must know many things other than the classical symptoms, the classical findings, the anatomy, and the physiology of the heart. And that is the reason, to me at least, that the treatment of heart disease holds so great an interest for the man in general medicine.

The time has come when general medicine is the most important field in all practice. In the pre-bacteriological age it was all general medicine, and then, with the findings and the discoveries of the bacteriologists, the specialties developed very rapidly and threatened for a time to overwhelm and displace general medicine.

The pendulum is now swinging back and general medicine is again coming to the front. It is no longer a disgrace to be a family doctor, or a general practitioner, because the dignity of any profession is only as much as the learning and dignity of the man who practices it.

Our modern schools have been turning out men who are well equipped for diagnosis and who, if they will give it their attention, must command the highest regard of any of our men who devote all of their time to one of the special features of the practice of medicine.

I think the electrocardiograph must have had its inception in 1786 when the wife of Professor Luigi Galvani was preparing a dinner of frogs legs.

It seems that Professor Galvani had a small, old-fashioned friction machine on the kitchen table and this friction machine, through the intervention of a table knife, came in contact with the frogs legs. Mrs. Galvani was surprised to see the frogs, which were supposed to be dead, begin to live again. She called the attention of her husband to this phenomenon and he immediately became interested. He began to study the electrical reactions of muscles.

In 1856 the discovery was made that a muscle contracting, develops an electric current. Before that time, in 1840, Sir William Thomson, who was president of the first Atlantic Cable Company, developed and invented the reflecting galvanometer. You are all famiilar with that. There are many types and many kinds, but it was found by the electrical engineers that the galvanometers in use were not of sufficient delicacy to pick up, register and record currents of small potentials. It was about 1904 or 1905, at the annual meeting of the electrical engineers in New York City, that one of their number exhibited a galvanometer known as an oscillograph. The oscillograph depends for its action upon an electric magnet which is encased in a cylinder filled with oil. The needle of the oscillograph is not a needle, but a suspended phosphor bronze ribbon. At the lower end of this phosphor bronze ribbon there is attached a small mirror.

The mirror is not more than one or two millimeters in length. This mirror looks out of a window. When currents are introduced to come in contact with the oscillograph or galvanometer, this phosphor bronze ribbon, which carries the mirror fastened to the ribbon by a piece of iron, will turn, either to the right or the left, according to the polarity of the current.

That is the most sensitive galvanometer that the electrical engineers know, but it is not sensitive enough to pick up the currents of the human heart, or the currents developed by the contraction of the human heart.

Therefore, it remained to have something done to increase that current so that it would affect the oscillograph ribbon. That was done by introducing three radio tubes and these three radio tubes boost the heart current 3,000 times.

The electrocardiograph was developed in 1903 by Einthoven in Amsterdam. He was a physiologist and he had been working many, many years, as you know, trying to find something to record the various actions of the heart. The recording device consisted of a very fine spun glass string suspended between two electromagnets. It was a very complicated machine, a very delicate machine. It was five years before anybody had the foresight to see that this very delicate and wonderful machine had possibilities in clinical medicine, and that first man was Sir Thomas Lewis, an Englishman.

Sir Thomas Lewis took the electrocardiograph out of the physiologist's laboratory and started making experiments in the use of it in the clinical practice of medicine. And Sir Thomas Lewis was the pioneer in what is known about electrocardiography. Other men since that time have written many articles on it, and many books have been written. The chapter is by no means closed, and it will not fulfill its mission until more men in general practice take an interest and begin to compare the pictures as made

by the electrocardiograph with the clinical symptoms as they progress or recede in their patients.

We have said that very many things have contributed to the development of this instrument of precision. The string galvanometer depended upon making pictures of the string as it waved back and forth in response to the electrical currents. The string was very easily broken. It required a good deal of ingenuity to keep the machine going. So it remained for American genius to develop a machine that did not have all of those very fine parts, and American genius utilized the oscillograph by introducing the radio tubes, and now the electrocardiogram is inscribed by rays of light as the mirror reflects them on a moving picture film. (We will show them in a little while.)

One of the greatest values of a machine of this kind, or any instrument of this kind, is that it arouses our curiosity, and unless we have our curiosity aroused we will not take very much interest in anything.

If you have electrocardiograms made, if you will pay attention to them, if you will study them, and make yourself familiar with what will seem at first a lot of foolish and irregular lines, you will find that your curiosity will grow, that you will be making more careful examinations of your patients, that you will be hearing tones you never heard before, that you will be hearing murmurs that you never heard before, that you will be learning to place a value upon the myocardia as it is portrayed by the stethoscope that you have never done before.

You will find that you will be taking histories as you never have taken them before, and you will find that you will be making observations of your patients that you never made before. And if it is of no more value than that, that would be sufficient.

But I want to again repeat that it will not fulfill its mission until every doctor becomes more familiar with the reading of the electrographic records.

(Slides)

DISCUSSION

Dr. Walter G. Bain, Springfield: I rather enjoyed the doctor's effort to tell you so much about the electrocardiograph in so short a time. He tackled rather a large subject.

No doubt the proposition of most interest to you men is that of how you are going to be able to make this new and very valuable instrument available to yourselves.

Formerly the electrocardiograph was an instrument so complicated that even in the large institutions the large hospitals, it was almost prohibitive from the standpoint of expense and from the standpoint of the high degree of skill required in the operation of this instrument.

Any hospital can install this improved instrument. It is also a practical instrument for an internist with a large heart practice to include in his office. In the hands of a good technician, this instrument can be operated without the presence of the physician. If the physician has not acquired skill in interpreting the graph, he can send it to some known cardiologist and have it interpreted. This opens the way for you to begin the study of the use of this instrument in your own practice.

We have had a Victor electrocardiograph at St. John's Hospital at Springfield for two years, and in observing the numerous cases that have come up for examination it seems to me that the most valuable asset that we have in this instrument is that we are able to give much better prognoses of these heart cases. I do not believe there is any one factor that is so valuable in prognosing the future of these heart conditions as this modern electrocardiograph.

Dr. Charles R. Wiley, Chicago: In discussing this subject of electrocardiography I wish to say my own experience with it dates back to about the time this machine was first put on the market.

There is only this note of warning: The electrocardiograph will not make a diagnosis of a heart with a mitral insufficiency, other than a left heart preponderance. It will not show the condition of a heart in a mistral stenosis or a decompensation. It will not show the condition of the heart except in the arhythnias and in myocarditis, and there it has real value. It is an instrument of small value in the ordinary lesions with which you come in contact in general practice.

It will do this for you: it will give you an indication of the condition of the heart from the standpoint of digitalization.

Dr. Emmet Keating, Chicago: I tried to point out that you have not successfully practiced medicine if your only dependence was the electrocardiogram. The picture must be coordinated and correlated with your history and your physical facts.

The best way to start to learn how to study an electrocardiographic record is to have one made of yourself. If you have a normal electrocardiogram for your age and will keep it and compare it with every electrocardiogram that is brought to your attention, you will have a starting point, and you will learn to decipher what these various things mean.

I am glad that Doctor Wiley spoke of digitalis, because if there is any road that will lead the doctor to

disaster it is the road of thinking of heart disease in terms of digitalis.

It is surprising how many heart conditions you can treat successfully if you will forget all about digitalis and it is surprising how relatively few heart conditions need digitalis, if you will do the other things to relieve the heart of its burdens.

RELIEF OF PROJECTILE VOMITING IN INFANTS BY RADIATION OF THE UPPER CHEST REGION*

ORVILLE BARBOUR, M. D., AND J. W. CONNELL, M. D., PEORIA

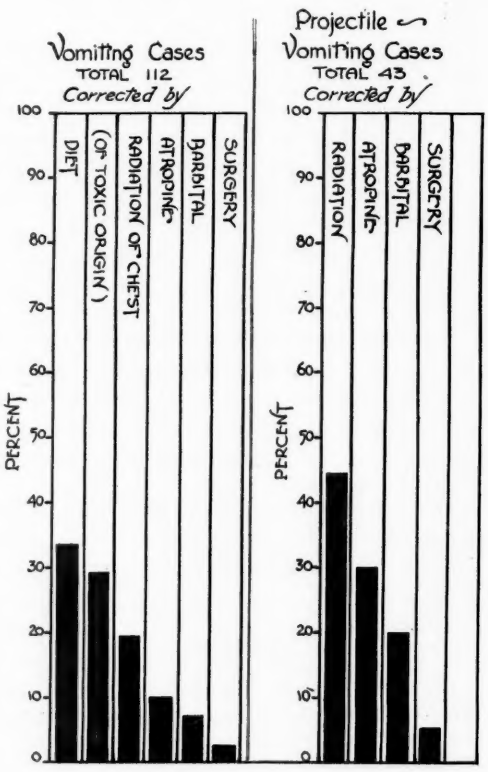
An infant with projectile vomiting presents a difficult problem of choice of therapy to the clinician. The question always is, whether surgery is or is not necessary. The usual procedure is to attempt to enable the baby to make a satisfactory gain in weight by the use of atropine and thick feeding, until after several weeks or months the vomiting finally ceases; or, if the vomiting continues unabated to have a Rammstedt operation performed. The etiology of this condition is undetermined, and the physiological processes involved are not definitely known.

The cases operated on show a definite tumor of hypertrophied muscle. The incision of this tumor and probably of nerve endings brings relief of the vomiting. And yet, Tumpeer and Bernstein[1] have artificially produced this tumor in the pyloruses of adult dogs, without producing the clinical picture of pyloric stenosis. After one or two days these dogs did not vomit, nor was the emptying time of the stomachs conspicuously retarded. It would appear from their work that the vomiting is not due to the anatomic tumor alone. Contraction waves were observed passing over the surface of these artificial tumors as are seen over the clinical pyloric tumors. The significance of these waves is a matter of conjecture. Perhaps if these experiments were repeated on new-born puppies instead of on adult dogs the comparisons would be more analogous to clinical pyloric stenosis, which occurs only in new-born infants.

Atropine paralyzes the vagus endings with depression of all persistalsis of the stomach, as well as of the pylorus. In some cases, atropine brings a great deal of relief, in others, apparently none. This may be due either to the degree of, or to the difference in etiology. The hyperirritability of the infant's entire nervous system may be a factor. This may explain the good results obtained by Sauer with phenol-barbital. These infants usually seem abnormally nervous, and sensitive to external stimuli.

During the last two years the writers have had certain experiences and empirical results, which we hope may throw some light on the factors involved in this condition. It is with this in mind that the material in this paper is presented.

During this two year period 112 cases of vomiting in infants under 4 months of age have been studied. Analysis of these cases reveals the following information. In 32 cases or in 29 per cent of the total, the vomiting was found to be of definite toxic or infectious origin. The vomiting was relieved in 37 cases or 33 per cent of the 112, by correcting the diet. Twelve cases or 10 per cent were controlled with atropine and thick feedings. Eight cases or 7 per cent were relieved by phenol-barbital. Radiation of



*Read before Section on Medicine, Illinois State Medical Society, May 23, 1929.

the upper chest region relieved 21 cases or 19 per cent of the total. In 2 cases or 2 per cent a Rammstedt operation was performed.[2]

In 69 of these 112 cases the vomiting was not essentially projectile. In 43 cases the vomiting was persistently true clinical projectile vomiting. Analyzing these 43 cases we find that 30 per cent of them were treated with atropine, 20 per cent with phenol-barbital, 45 per cent by radiation of the upper chest, and 5 per cent by surgery.[3]

In August, 1926, while determining the emptying time of the stomach of an infant with projectile vomiting, we noticed that the thymus shadow was much larger than normal. We decided to radiate the thymus area before giving an anesthetic for the Rammstedt operation. To our surprise the patient stopped vomiting 12 hours after the application of the roentgen rays. The results obtained in that and in 3 other cases were published in May, 1927.[4] A year later Rubin[5] reported finding enlarged thymus shadows in 13 consecutive cases of pylorospasm, and of relieving the condition in 5 cases by radiation of the thymus area. We wish to present in this paper our experiences and results in 17 additional cases.

REPORT OF CASES

Case 5. April 23, 1928. Dorothy B. A female infant aged 5 weeks, breast fed. Second child. She had been choking and vomiting for 3 days. Projectile vomiting occurred at irregular intervals between feedings. Administration of atropine before nursing for 48 hours had no effect on the vomiting. X-ray examination of the chest showed the supracardiac shadow to be wider than usual, on either side of the spine at the level of the second rib. Ninety mg. of radium was applied over the upper chest for 2 hours on each of 4 areas. The size of pack used was 1 inch by 1 inch. It was used at 2½ cm. from the skin, with 1 m.m. lead filter, plus a lead jacket. With four 2 hour applications of the 90 mg. used, a total dosage of 720 mg. hours was given. This was the dosage and technique used in each case heerein reported, unless otherwise specified. Nursings were preceded by gastric lavages, and a large amount of mucus was obtained each time. The patient's condition was improved 12 hours after the radium application. Five days later the vomiting had ceased. The lavages no longer contained any mucus, so they were discontinued. The subsequent history of this child is of peculiar interest. Two months later she developed pertussis. The paroxysms became quite severe, accompanied by marked dyspnea and cyanosis. These dysneic attacks became so severe that in a desperate effort to obtain relief the radium application was repeated. A noticeable improvement was evident in the infant's condition the following day. Although a mild bronchial cough persisted for 2 weeks, no more paroxysms occurred after the fifth day following the radium application. Her progress since has been uneventful.

Case 6. May 21, 1928. Robert M. A male infant, aged 7 weeks. First child. He was weaned 2 weeks after birth because of his mother's abscessed breasts. He had then been fed various sweet milk formulae. He cried a great deal and forcefully vomited shortly after each feeding. He was quite constipated, and passed hard soap stools when given enemas. He was malnourished and had a distended abdomen. Whole lactic milk with lactose, preceded by atropine, was given every 4 hours. For 10 days he vomited very little, seemed more comfortable, and gained 8 ounces in weight. On the eighth day projectile vomiting occurred shortly after each of four consecutive feedings. Roentgen examination showed both lungs clear. There was a soft tissue shadow seen to the left of the spine at the level of the 1st to the 4th ribs. This was judged to be an enlarged thymus gland. That area was exposed to the roentgen rays as follows: An area over the manubrium of 1½ inches by 2 inches was exposed. The face, neck, and the rest of the chest was shielded. The time of exposure was 5 minutes, the distance 12 inches, spark gap 6 to 7 inches, milliamperes 5. This was the dosage and technique used in each case in this series, unless otherwise specified. During the 2 following days the feedings were retained. On the third day, each feeding was soon forcefully expelled. The upper chest was then exposed to radium for 8 hours, as described in the previous case history. The patient's condition improved within 24 hours, and continued to do so without recurrence of the symptoms. Lavage of the stomach and rectum were continued for 10 days until all the mucus had disappeared. He has since continued to develop normally.

Case 7. May 31, 1928. John E. A male infant, aged 5 weeks. First child. He had been delivered by Ceserean section at full term. He had been artificially fed since birth on various cow's milk formulae. He passed a soft light yellow stool every 2 or 3 days. Beginning at 3 weeks of age projectile vomiting occurred shortly after each feeding. Mucus was present in the vomitus, but not in the stools. His weight at 5 weeks equalled his birth-weight. Atropine was given before each of the next 6 feedings without any noticeable effect. Roentgen examination of the chest showed that there was a definite shadow of an enlarged thymus in the supracardiac region. The lung fields otherwise looked normal. The child was given barium with his feeding and plated and fluoroscoped 10 minutes later. None of the barium had passed out of the stomach. The infant was re-rayed at the end of 4 hours. About 25 per cent. of the meal had passed through the pylorus. The bulk of the meal was still in the stomach. The upper chest was then exposed to the roentgen rays for 5 minutes, with the described technique. Whole lactic milk with corn syrup, preceded

by gastric lavage, was fed by gavage every 4 hours. The feedings were retained, and the infant gained in weight, but the mucus persisted in the lavages for the next 12 days. On the thirteenth day projectile vomiting recurred. Another x-ray examination showed a definite decrease in the size of the thymus, shadow, and a 25 per cent. retention of a 4 hour barium meal. Because of the child's clinical condition radium was applied over the upper chest. Three days later all the feedings were being retained, no mucus was present in the lavages, the roentgen ray showed an apparently normal thymus shadow, and an almost complete emptying of the barium meal in 4 hours. Lavages and gavages were discontinued. The baby has continued to thrive without further trouble.

Case 8. June 7, 1928. Barbara H. A female infant, aged 7 weeks. Breast fed. Sixth child. She was delivered one month over term by transverse labor. She had trouble breathing after delivery, and couldn't use her left arm for nine days. She had been vomiting shortly after each nursing for 4 weeks. The vomiting was usually projectile. She had had 3 choking spells with cyanosis, in the last week. She was good during the night, but was very fussy during the day. She had 12 to 18 small yellow stools daily during her first 4 weeks of life. The stools then became larger and much less frequent. The abdomen was distended constantly and flatus was expelled frequently. She weighed 10 pounds, which was 2 pounds more than her birthweight. Roentgen examination showed an enlarged thymus shadow and a 50 per cent. retention of a 4 hour barium meal. The upper chest was then exposed to the roentgen rays for 5 minutes. A large amount of mucus was returned in the gastric lavages. All feedings were retained for 3 days. Projectile vomiting recurred on the fourth day. X-ray examination on that day showed the supracardiac shadow to represent about 50 per cent. of the chest in that area. There was a very small residue of barium in the stomach 4 hours after feeding. Radium was applied over the upper chest for 8 hours. She retained all of her feedings after 12 hours following the radium application. Five days later no more mucus was obtained in the lavages. She was discharged from the hospital, and has since continued to develop normally.

Case 9. Aug. 31, 1928. Robert S. A male infant, aged 3 weeks. First child. Breast fed one week. He was then fed S. M. A. Projectile vomiting had occurred shortly after nearly every feeding for 2 weeks. Atropine was prescribed to be given before each feeding. Twelve hours later he vomited after a feeding, and choked and became cyanotic. Roentgen examination showed the supracardiac shadow to be widened about one-eighth of an inch on either side of the spine at the level of the second dorsal vertebra. Five minutes of x-rays were applied to that region. Large amounts of mucus were lavaged from the stomach before each feeding. All feedings were retained for 2 days. On the third day projectile vomiting recurred. Radium was then applied over the upper chest. The vomiting stopped within 24 hours. Nine days later the mucus had disappeared from the gastric lavages, and there has been no recurrence of the vomiting.

Case 10. September 6, 1928. Elton R. A male infant, aged 10 weeks. First child. He had been fed breast milk 2 weeks, then whole lactic milk 2 weeks, then S.M.A. for 6 weeks. When 10 weeks of age he began having projectile vomiting shortly after each feeding. Roentgen examination showed the thymus shadow to be widened to about one-half the distance of the upper chest. That area was exposed to the roentgen rays for about 5 minutes. The baby continued to vomit after each feeding. Large amounts of mucus were obtained in each gastric lavage. The upper chest was then exposed to radium. Four days later he was discharged from the hospital with no more vomiting and no more mucus in the lavages.

Case 11. September 14, 1928. Janette B. A female infant, aged 2 days. Second child. Breast fed. The first child was case 3 in this series. When this baby was 24 hours old she began vomiting shortly after each feeding. The vomiting was projectile. Atropine, lavage of mucus, and feeding by gavage for 2 days had no effect on the vomiting. Roentgen examination showed an enlarged thymus shadow. That area was then exposed to the roentgen rays for 5 minutes. No more vomiting occurred. Gastric lavage was continued for 15 days, because of the persistence of mucus. She was then discharged from the hospital and continued to thrive on her mother's milk.

Case 12. September 14, 1928. Fred H. A male infant, aged 2 days. Second child. Breast fed. For 24 hours projectile vomiting had occurred shortly after each feeding. Mucus was present in the vomitus and in the stools. Atropine, lavage of mucus, and gavage of feedings for 2 days had no effect on the vomiting. Roentgen examination showed an enlarged thymus shadow. The usual x-ray dosage was applied to the upper chest. The following day he nursed his mother's breasts without vomiting. The mucus disappeared in 11 days. The lavages were then discontinued. There has been no recurrence of the vomiting.

Case 13. October 15, 1928. Joan B. A female infant, aged 3 months. Second child. Artificially fed since birth. She had been vomiting and choking with some cyanosis after each feeding for 4 days. Asthmatic rales were heard over both lungs. Roentgen examination showed an enlarged thymus shadow. The upper chest was then exposed to the roentgen rays for 5 minutes. Her condition was no better 24 hours later, so radium was applied to the upper chest. The vomiting stopped 12 hours after the removal of the radium. Her condition continued to improve until 5 days later she seemed all right except for the mucus returned in the gastric lavages. The lavages were discontinued and she was discharged from the hospital. Four days later projectile vomiting recurred. Large quantities of mucus were present in the vomitus, and passed in the stools. The mucus was lavaged from the stomach and rectum the following 4 days. No mucus was obtained on the fifth day, so the lavages were dis-

continued. The child's development has since been uneventful.

Case 14, October 15, 1928. Donna S. A female infant, aged 5 weeks. First child. Artificially fed since birth. At 3 weeks of age she began to cry a great deal. She vomited forcefully shortly after each feeding. Large amounts of mucus were seen in her vomitus and in her stools. Atropine seemed to bring prompt relief. She gained normally for 5 weeks. At that time the vomiting and crying recurred with the onset of an upper respiratory infection. The infection had subsided 5 days later, but the vomiting and crying continued. Atropine had no effect. Roentgen examination showed a shadow slightly to the right and to the left of the spine in the supracardiac region. The width of the chest shadow at that region was 8.7 cm. The width of the gland shadow was 3 cm. Because of the clinical condition, the upper chest was exposed to the roentgen rays. The vomiting stopped within 8 hours. Gastric lavages were continued until no more mucus was returned, which was 7 days later. The vomiting did not recur.

Case 15. November 28, 1928. Gilbert G. A male infant, aged 11 weeks. First child. This case was a most unusual one. He progressed normally for 3 weeks. Then he cried most of the time for 24 hours. The second day he became cyanotic and remained so for 3 days. His condition then apparently returned to normal. However, he was weaned from the breast and placed on artificial feedings. Two weeks later he again had a severe crying spell and then became cyanotic. He remained cyanotic for one week. He then seemed normal for two weeks, when the cyanosis returned for another week. During these periods of cyanosis he vomited apparently all of each feeding, either immediately or an hour after. The vomiting was usually projectile. The parents did not notice any dyspnea. After a week of seeming quite well, when 11 weeks of age he became quite cyanotic, and vomited each of his feedings. Examination revealed a well-nourished male infant, with a marked general cyanosis. He was quite apathetic. The heart sounds were normal. The blood cells were normal except for a secondary anemia. The rectal temperature was 95 deg. F. Roentgen examination showed a markedly enlarged thymus shadow. The width of the chest shadow in the supracardiac region was 8.7 cm., the width of the gland shadow was 3.7 cm., or nearly half of the width of the chest. The roentgen rays were applied to an area 2 inches square over the strenum. For two days he had the appearance of a normal infant. On the third day the vomiting recurred but the cyanosis did not. Radium was applied over the upper chest. One week later roentgen examination showed the thymus shadow width to have decreased from 3.7 cm. to 3.1 cm. Large amounts of mucus persisted in the gastric lavages and in the stools for 21 days. The patient was then discharged from the hospital. He has since progressed normally.

Case 16. December 11, 1928. Billy B. A male infant, aged 3 weeks. Fifth child. He had been vomiting shortly after each feeding for 6 days. He was given atropine, and whole lactic feedings by gavage. Gastric lavages contained large amounts of mucus. There was no appreciable lessening of the vomiting in 24 hours. Roentgen examination of the chest showed no roentgen evidence of an enlarged thymus. However, because of the symptoms the upper chest was exposed to the roentgen rays. Two days later the vomiting was just as severe. The x-ray demonstrated a 90 per cent. retention of a barium meal after 4 hours. The patient was losing weight and becoming dehydrated, so 250 cc. of Ringer's solution was administered introperitoneally on each of the 2 following days. The next day, December 17, 1928, Dr. George Weber performed a Rammstedt operation. A pyloric tumor about the size of a hickory nut was incised. The baby recovered satisfactorily from the operation, retained his feedings, and gained steadily in weight, except during a week of bronchitis, which occurred 2 weeks after the operation. The gastric lavages were continued for 5 weeks, however, because of the persistence of mucus. The subsequent history of this patient is of special interest. His progress was uneventful until March 12, 1929. On that day, nearly 3 months after the operation, projectile vomiting recurred. Large amounts of mucus were lavaged from the stomach. Radium was then applied over the upper chest for 8 hours. No more vomiting occurred after 8 hours following the exposure to the radium. No mucus was returned in the lavages 3 days later. He has had no further trouble.

Case 17. December 20, 1928. Orville T. A male infant, aged 5 weeks. Third child. The family history here is of interest. The first baby was found dead in bed. The second child during infancy had a chronic cough which was relieved by radiation of the upper chest region. This infant began projectile vomiting at 4 weeks of age. The vomiting continued for one week without cessation. Atropine was administered for two days, but gave no relief. Gastric lavages contained mucus. Roentgen examination showed the supracardiac shadow to extend about one-sixteenth of an inch on either side of the spine at the level of the second rib. Because of the clinical picture, and the family history, the upper chest was exposed to the roentgen rays, even though the thymus shadow was not appreciably enlarged. The vomiting stopped temporarily, then recurred 2 days later. Eighty mg. of radium was then applied over the thymus area. Seven days later all feedings had been retained for 6 days, and no mucus was returned in the lavages. Thirty days later projectile vomiting recurred. He vomited shortly after each feeding. His abdomen became quite distended. The thymus shadow appeared normal in size. However, because of the persistence of the symptoms the radium dosage was repeated. He continued to vomit one or two of his feedings daily. The abdomen remained distended. Mucus continued in large amounts in the gastric and rectal lavages. Atropine was continued, whole lactic milk was fed by gavage. The patient's condition would not improve. His weight did

not increase. One month later his weight was the same as on the day of admittance. On suspicion, 50 mg. of neoarspenamine was administered intraperitoneally according to Grulee's[6] method. Within 48 hours his condition began to improve. His weight gained steadily. The neoarsphenamine was repeated at weekly intervals until 8 injections had been given. The infant gained 24 ounces in weight the first 2 weeks. He stopped vomiting, his bowels functioned normally, the abdominal distension disappeared, no more flatus was expelled, and no mucus was returned in the lavages. His progress since his been uneventful.

Case 18. January 24, 1929. Richard M. A male infant, aged 2 days. Fourth child. The family history is also of interest in this case. The preceding child had projectile vomiting of his feedings for 15 months. Sufficient food was retained by the use of atropine and thick feedings to permit a nearly normal growth. Another item of interest is that case No. 6 in this series is a paternal cousin of this patient. This infant's condition seemed normal for 24 hours. The second day water and feedings were promptly vomited. Atropine and whole lactic milk was given for 4 days without any effect on the vomiting. Gastric lavages obtained large amounts of mucus. Roentgen examination of the chest showed no roentgen evidence of an enlarged thymus. Because of the symptoms the upper chest was exposed to the roentgen rays. No more vomiting occurred after 8 hours following the exposure to the x-rays. No mucus was returned in the gastric lavages 6 days later. The patient has continued to develop normally.

Case 19. February 2, 1929. Jacqueline M. A female infant, age 15 weeks. Artificially fed. Second child. Her development had been normal until two days ago. On that day, while feeding she began to cry and choke. She became quite cyanotic for a few moments. A few moments later she vomited quite forcefully. She continued to cry most of the time. Projectile vomiting occurred shortly after each feeding. Atropine and adjusting the food had no effect. Two days later roentgen examination showed an enlarged thymus shadow. The upper chest was then exposed to the roentgen rays. Eight hours later her feeding was retained. She stopped crying and slept apparently in comfort. Gastric lavages were continued for 3 days. No more mucus was obtained, so the patient was discharged from the hospital. She has continued to thrive without recurrence of the symptoms.

Case 20. February 7, 1929. Mary D. A female infant, aged 4 months. First child. Artificially fed. After gaining normally for 4 months, she developed bilateral cervical adenitis. Four days later she choked during feedings. Projectile vomiting occurred shortly after each feeding. This continued for 3 days. At that time her temperature was 101 deg. F. A urinalysis demonstrated a moderate pyelitis. Large amounts of mucus were obtained in the gastric lavages. Roentgen examination showed a widened supracardiac shadow above the shadow of the heart indicative of an enlarged thymus gland. The usual exposure of roentgen rays was given to the upper chest. The vomiting stopped 8 hours later. The lavages were continued for 18 days, until no mucus was found. The infant's condition steadily improved and she gained steadily in weight after vomiting had ceased. Four weeks after admittance she was discharged from the hospital apparently in good condition. This case was not a true case of pylorospasm, but is included in this series because of the response of the projectile vomiting to radiation of the upper chest, in an infant with a definite toxemia. The fact that the cervical lymph glands were involved is of interest. Whether it is of any significance is a matter af conjecture.

Case 21. March 6, 1929. Ralph A. A male infant, aged 6 weeks. Breast fed. First child. At two weeks of age he began coughing at irregular intervals daily. At three weeks he began vomiting immediately or two or three hours after 3 or 4 feedings daily. He had been nursed regularly, and gained normally in weight. He was obstinately constipated. He was a well-nourished infant, with a normal temperature. His abdomen was quite distended. Atropine was administered before nursings for two days, with no effect on the vomiting. Roentgen examination of the chest showed a shadow at the level of the second interspace extending to the right and to the left of the spine indicative of an enlarged thymus. The usual x-ray exposure was given. In 24 hours the patient's condition had markedly improved. Large amounts of mucus were lavaged from the stomach before nursings. Four days later the projectile vomiting recurred. Radium was then applied over the upper chest. He has vomited no more. However, the mucus persisted in the gastric lavages and in the stools. The abdominal distension also persisted. Ten days later, because of a failing supply of breast milk, the baby was given complemental feedings of a cow's milk formula. Within a few hours he seemed more comfortable. He was then given artificial feedings alone for two days, then breast feedings only for two days, then breast and complemental feedings for two days. He was uncomfortable on complementary feedings, distinctly more uncomfortable on breast feedings, but seemed quite contented on artificial feedings. Accordingly he was weaned from the breast and placed on diluted cow's milk. The abdominal distension disappeared within 24 hours. In three days no more mucus was returned in the gastric and rectal lavages. The lavages were discontinued. The patient's progress has since been uneventful.

Discussion: These results require further investigation to determine how they were obtained physiologically. Investigations should be made as to the etiology of the symptoms, and as to how radiation of the chest relieved these symtoms.

Our first thought was that the thymus was the etiological factor. In those cases with en-

larged thymus shadows pressure of the gland on the vagi might possibly have had an irritating effect on the pylorus, but that would not account for the paralytic ileus and resulting abdominal distension that occurred in some of these cases. This distension might be explained, however, by a disturbed blood chemistry that occurs with an obstruction of the gastro-intestinal tract.

No blood chemistry analyses were obtained in our cases, so we have no information on that question. Thymus pressure on the vagi could hardly account for the recurrence of the vomiting after the thymus shadow and shrunk to apparently normal size following its exposure to the roentgen rays. Nor would it account for the subsequent permanent cessation of the vomiting following the application of radium over the same region. In all cases but two the thymus shadow was apparently enlarged laterally. We did not take any anteroposterior views, because we have found them of no value to us in cases of so-called thymic dyspnea. Furthermore, it has been our experience that the size of the thymus shadow has no bearing on the severity of the symptoms.

No one has ever found any conclusive evidence that the thymus produces an internal secretion, so for the present at least, such a possibility need not be considered. Whether the excess of nuclein and phosphorus found in thymic tissue has any bearing on the clinical picture remains to be seen.

General or local lymphatic hyperplasia with resulting toxic irritation may be a factor. It is well known how sensitive lymph tissue is to radiation. It may be possible that the lymph tissue destruction in the area exposed be sufficient to reduce the etiological irritation. Perhaps the lymph gland at the pylorus produces a direct irritation.

Whether or not the hyperirritability of the young infant's central nervous system is a factor in this condition is debatable.

In two of our cases protein sensitization seemed to be involved. They remained uncomfortable until cow's milk was substituted for mother's milk, as their food.

It seems to us that toxic irritation enters into the production of the vomiting. Whether the source of this toxcity is lymphatic hyperplasia or not, remains to be determined. Most of these cases had a very slight daily rise in temperature. The one constant finding in every one of our cases, in addition to the vomiting was mucus in the gastric secretions. It was also usually found in the stools. In two cases in which the gastric lavages were discontinued before the mucus disappeared the vomiting recurred within a few days. When the lavages were continued as long as mucus was returned, the vomiting did not recur. It is well known that an evident toxicity in older children, as well as in infants, will produce vomiting, gastric anacidity, and mucus. If the stomach of older children are thus affected by an evident toxicity, perhaps new-born infants who are very sensitive to all stimuli, may react in this manner to a slight toxic irritation. No gastric analyses were made in these cases so we do not know whether or not the acidity was affected. The symptoms of pylorospasm practically always appear under two months of age, while the infant's nervous system is hyperirritable and all of its body cells and organs are extremely sensitive. Six cases cried or moaned a great deal as if in pain. Seven cases gave a history of cyanosis. In each of these cases, the thymus shadow was considered distinctly larger than normal. Whether this was due to the pressure of the enlarged gland on the blood vessels or not, we do not know.

How did radiation of the upper chest region produce the results herein reported? Was it due to the effect of the rays on the thymus? Reduction of the size of the gland alone would hardly explain it. Was it due to the effect of the rays on the vagi? We hardly think so. Nerve fibres are notably resistant to the roentgen ray.

If the etiology of the projectile vomiting is toxic irritation from lymphatic hyperplasia, the destruction of the abundant glandular tissue in the chest by radiation, must be sufficient to remove that irritation. The temporary exaggeration of the symptoms that occurs during and following radiation might be explained as a toxic reaction due to the absorption of the destroyed lymph tissue. The patients vomit any food given to them for 8 hours following the exposure to the rays. Also, their temperature will rise a little for 24 to 48 hours, and the quantity of mucus definitely increased for one to three days.

Then follows a temporary or permanent relief of the clinical picture.

This same toxic reaction may result from a foreign protein effect, due to the absorption of any destroyed or irritated tissue within the range of the rays. None of these infants received a skin-burn from the dosages used, but perhaps the sensitive individual cells of the new-born are extremely susceptible to the rays. This hypothesis may be determined by raying other parts of the body, or by injecting a foreign protein hypodermatically and observing the results.

Ivy[7] exposed the thorax of dogs to roentgen rays sufficient to cause a first degree burn, without any effect on the gastric secretions. A human erythema dose of roentgen rays of short wave length delivered over the lower abdomen caused a hypernormal secretion of gastric juice lasting 1 or 2 days, followed by anorexia, hyponormal secretion and sometimes diarrhea, followed by normal gastric secretion and appetite on the fifth day day. Similar results are reported by others.[8-9-10]

It is well known that the abdomen is extremely sensitive to roentgen rays, so similar results would perhaps be obtained on the human stomach. What effect roentgen ray exposure to the abdomen would have on clinical projectile vomiting is unknown. Why these observers obtained no results on the dog's stomach by radiation of the thorax, when we did on infants, needs explaining. Perhaps the fact that they used adult dogs, and our patients were new-born infants is a factor. It would be interesting to observe the results on new-born puppies. Our results were obtained in cases of clinical projectile vomiting. It may be that radiation of the chests of normal infants would have no effect on the gastric secretion.

Certainly these infants do not function normally physiologically while they are vomiting. Whether their general health is impaired, or their resistance is below normal we do not know. Four of our total of 21 cases later died, 17 are now living and healthy. Of those who died, case 3, previously reported, stopped vomiting but continued to lose in weight and died a week later. Cases 9 and 10 both died about a month following the radiation, of acute infectious colitis, which was prevalent in our community at that time. Case 14 died six weeks following radiation of acute mastoiditis.

The technique used in raying these cases is the same as we use on cases of thymic dyspnea. We have chosen to use the roentgen rays at first for two reasons: first, because occasionally one exposure of roentgen rays will permanently relieve the symptoms; second, because we feel that the use of radium as an initial treatment is dangerous. The toxic reaction to radium in the infants is greater than it is to the roentgen rays. Therefore, we feel it a safer plan to use the roentgen rays first, and then radium should more radiation be required. Although Hammar, who has studied the thymus for 20 years, states that raying that region does no harm to the chest, we feel that over-exposure is dangerous to the infant's general condition, and that it should be avoided.

In cases of projectile vomiting which do not respond to atropine, we have found exposing the upper chest to the roentgen rays of diagnostic, as well as of therapeutic value. One case reported in this series, and one case not reported were rayed without effecting the vomiting. Each of these cases was operated on, and a pyloric tumor found.

SUMMARY

1. Projectile vomiting was relieved in 17 infants herein reported and in 4 infants previously reported, by radiation of the upper chest region.
2. Of the 21 cases
   - A. 5 were relieved permanently by one exposure to the roentgen rays.
   - B. 3 were relieved permanently by one exposure to radium.
   - C. 12 were relieved temporarily by exposure to the roentgen rays, and then permanently by exposure to radium.
   - D. 1 case was exposured to the roentgen rays without relief, later was relieved temporarily by a Rammstedt operation, and 3 months later permanently relieved of vomiting by exposure to radium.
3. Thirteen were males, eight were females.
4. Ten were first-born.
5. Six cases were breast fed and 15 were artificially fed.
6. Four contained cases of projectile vomiting in their family history.

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REFERENCES

1. Tumpeer, I. H. and Bernstein, M. A.: Amer. J. Dis. of Childr. Oct., 1922. Vol. 24, pp. 306-310.
2. See Chart 1.
3. See Chart 2.
4. Barbour, O.: Arch. Pediat. May, 1927.
5. Rubin, M. I.: J. A. M. A. Vol. 90, No. 21 pp. 1694-1697.
6. Grulee, C.: Amer. J. Dis. of Childr. 35: 1-170 (Jan.), 1928.
7. Ivy, A. C.: J. A. M. A. Dec. 20, 1924. Vol. 83, pp. 1977-1983.
8. Warren, S. L. and Whipple, G. H.: J. Exper. Med. 35:18 (Feb.), 1922. 28:713 (Dec.), 1923.
9. Dennis, Martin and Aldrich: Amer. J. M. Sc. 160:555 (Oct.), 1920.
10. Portis and Ahrens: Amer. J. Roentgenal. 11:272, 1924.

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DISCUSSION

Dr. King G. Woodward, Rockford: I have been very much interested in Dr. Barbour's work, especially his work with the use of radium. I have had no occasion to use radium but I have used the x-ray rather extensively in these cases of thymic enlargement.

To me the question of the thymus is still open for a great deal of discussion, and as Dr. Barbour has cited, we do not know why the use of the roentgen ray gives us the results that it does in the cases of projectile vomiting.

I had a rather extensive case of both thymic enlargement and projectile vomiting several weeks ago. I was called to see the youngster when three days old because of the inability to keep any food or liquid down. The child at that time was considerably dehydrated. We administered fluids intraperitoneally and subcutaneously, and gave it a thick cereal feeding. We radiated the chest which showed a very slight lateral thymic enlargement, but the density of the thymus shadow was considerably increased.

Fluroscopic examination with barium and subsequent x-ray pictures showed there was a two-hour retention of the barium. The child's condition was such that it was not deemed advisable to go ahead with surgical intervention, and for the next several days I used fluids intraperitoneally and thick cereal feeding with a cessation of vomiting.

The condition of the child did not improve as much as I thought it should and I was about ready to turn it over for surgical intervention. Before doing so we decided to have an x-ray treatment for the supposed slight thymic enlargement. In twelve hours after treatment the child had a temperature of 107 and the following morning the vomiting ceased and there has been no return since. An x-ray picture was taken three days ago and although the child appeared in perfect condition, it still shows an enlargement of the thymus.

What we have done I do not know. I do feel in regard to thymic enlargements that a child with a large thymus gland and with symptoms should be given x-ray treatments.

It has been our practice to give a series of three treatments and then if there is considerable improvement at the end of three months take another x-ray picture to determine whether or not there had been any shrinkage of the thymus gland. If there has not been a diminution in the size of the gland, but the symptoms have subsided, we let the thymus alone.

Dr. Henry J. Jurgens, Quincy: The thymus question is still pretty much up in the air. We have been in the habit of accusing the thymus of a great many things for which it is not responsible. Certainly the reports of the radiologists on the size of the thymus we must accept with a grain of salt. They are in the habit usually of taking the anteroposterior pictures which do not give any idea of the thickness of the gland itself.

As to the question of the vagus being disturbed by pressure of the thymus tissue that seems pretty far fetched, because in the first place the vagus is pretty well protected by the vessels and sheath in which it lies. And secondly, the nerve tissue is much more resistant than the soft glandular tissue.

I fully agree with the last speaker that there are a great many doctors giving an anesthetic who undoubtedly would have said the patient presented pathologically and anatomically the conditions which we usually have attributed to the status lymphaticus. It would be interesting if these gentlemen would tell us when they report these cases, if any observations have been made on these children that develop pyloric stenosis, at the time of their birth. There is undoubtedly a large question involved in this pyloric stenosis and the thyroid, rather than the thymus question, looms up.

Those of us who have had the good, or bad, fortune of operating on these cases and who have actually felt the pylorus in those cases know that it is not a clamor, we know it is absolute thickness and absolute hardness of the tissues. When you cut into it, it cuts like cartilage almost. The question is, why should this occur?

It would be interesting to know, for instance, the weight of these babies at birth. It would be interesting to know whether the different ossific nuclei which should be present at birth are present or whether they are abnormal and whether there is abnormal advancement of the ossification of particularly the bones of the feet and hands.

It would be still more interesting a year from now to get a report on these cases to find out whether there were other endocrine deficiencies, such as the development of the teeth and the brain.

If we get into this question pretty deeply we find that a great many of these babies have something wrong with their connective tissue. We find the con-

nective tissue in the pyloric wall, and in the bones abnormal; some disturbance in a great many or all of these cases—especially in the connective tissue forming the teeth and the neuroglia in the brain, as evidence by late teething, speech and cretinism. Of course, the neuroglia is not connective tissue, but it performs all the functions of this tissue by supporting the neurones and tracts.

Lately I have been in the habit of having all babies who at birth are over eight pounds x-rayed, to notice the condition and to give us a clew as to what to do. Engelbach has pointed out some years ago that very early and persistent thyroid therapy in these cases is indicated.

It is certainly very interesting to hear that some of these babies have improved by radiation, and it is one more thing to get away from surgery. Surgery is an abominable thing in these little babies, but still it saves lives.

Dr. John Vonachen, Peoria: I want to commend these two doctors. I think the practitioners will be benefited by a work like this, which should be carried on.

Frankly, I have never been a thymus enthusiast, and I have not had occasion to resort to radiation for projectile vomiting. We find that most of the cases that do not respond to atropine or phenol barbital before feedings, and those cases definitely losing ground are in the majority of cases true cases of pyloric stenosis.

I heard a very interesting discussion at the Detroit session of the American College of Physicians in which a pediatrician in Detroit made the statement that he was not seeing these cases. I think I will have to bear him out in this and in talking the matter over with different men in different communities I find some men see these cases and some do not. I think the only answer is that either some are poor diagnosticians, or else others are particularly looking for thymuses.

John Lovett Morse, in the *Boston Medical and Surgical Journal* of February, 1928, wrote a very trustworthy paper entitled, "The Obsession of the Thymus." He brings out the points particularly that we are misled by x-ray pictures of the thymus gland. This is no reflection on the roentgenologist. I think the reason for the difficulty is that it is impossible to obtain uniform pictures in infants unless you catch them in expiration, unless the pictures are taken at the same distance, and also depending a great deal upon the shifting of the position of the infant.

I trust that work such as this will be further carried on, and I am not taking issue with Dr. Barbour or Dr. Connell, but simply commenting with reference to the general wave that is sweeping the country—the fanaticism concerning the thymus gland.

Dr. Abt in commenting on Dr. Morse's paper states that he thinks most conditions which are considered due to the thymus can really be traced to other causes, and that in view of the fact that we have not any definite knowledge of the real function of the thymus gland, we should be very lenient in trying to attribute everything to this gland.

Dr. L. D. Snorf, Chicago: I happen not to be a pediatrician, but I am sufficiently interested in the gastric physiology to feel justified in asking just these few questions:

Was the emptying time determined on these cases, and how?

Were peristaltic waves noted in all these youngsters?

In these twenty-one cases was true pyloric stenosis decided upon, or were there cases of pylorospasm? Is it presumptuous to ask if there can be a distinct differentiation made? I happen not to know.

It seems to me that a further work that was suggested by Dr. Barbour on the physiologic processes of the stomach, determination of the gastric juice before and after radiation, would be of interest.

Dr. Lee Frech, Decatur: I have found in our practice that we have three different types of cases with which we deal in relation to this subject.

The first type being where we have the enlarged thymus and accidentally in our x-ray pictures we run on to a lot of enlarged thymus glands which clinically give absolutely no symptoms. In those cases we pay no attention to the thymus gland whatever because we do find so many of them without any symptoms that would be attributed to the thymus.

We run across other cases where we do not have, apparently, any symptoms from a thymus at all, and still we have our projectile vomiting, or our pylorospasm or our stenosis.

That, in a way, would make us believe that the thymus had at least clinically no connection with a stenosis or a pylorospasm, because it seems reasonable that if an enlarged thymus, without a gastric involvement would give thymic symptoms, with the gastric involvement we should still get our thymic symptoms.

That would lead me to conclude that as far as the enlarged thymus itself is concerned, there would be no connection between the two.

Then we see the case of enlarged thymus where we do get our clinical symptoms, and gastro-intestinal involvement (this is the third case).

Personally I never take any pictures of the chest for thymus unless I get clinical symptoms of thymus. On the other hand, we do run across a lot of enlarged thymus glands accidentally in our chest pictures which we leave alone and they never give us any trouble.

I believe that an enlarged thymus alone very rarely gives any trouble. It is my belief that there is something else connected with the enlarged thymus that cause symptoms or so-called status lymphaticus.

In those cases where you get your duskiness, and your dyspneic breathing very often the shadow of the thymus gland is disappointing, because in some of your most extreme cases, from symptomatic standpoints you get your smallest thymus glands, when you really expect a very definite enlargement.

On the other hand, in some of your accidental pic-

tures you get extremely enlarged thymus glands and still you get no symptoms from those glands.

There is another class of cases that we have run across, one just two days before coming to Peoria, in which we had a youngster who gave classical symptoms of thymus, duskiness, dyspneic breathing, and so forth. But this youngster was not brought in for that. The parents stated that the youngster incidentally had a cold. The youngster was brought in for projectile vomiting and the projectile vomiting was very definite, water not even being retained.

Here is another case where you have symptoms of thymus with projectile vomiting. The x-ray showed a very definitely enlarged thymus in that case. The youngster was given one treatment. We have not had time yet to find out what result that is going to have upon the vomiting. But I believe that enlarged thymus alone is not responsible for these things. I believe there is something else there other than just the simple enlargement.

I hope that Dr. Barbour's therapy will give us some relief. I am not denying, however, that the x-ray in these cases will do any good. That would be too far-fetched, but it is my hope that it will. I hope he goes ahead with it and works it out further and we would like to hear from him next year again.

Dr. S. H. Easton, Peoria: Speaking neither as a pediatrician or roentgenologist, or anything but an interested observer, it has been my privilege to see a lot of Dr. Barbour's cases at the hospital, and I can vouch for the accuracy of his clinical reports. I think when the paper appears it will be of interest to read carefully his clinical histories.

Dr. Barbour has not accused the thymus of being the cause of this trouble, as I recall in the paper. It is presented as a series of empirical observations in which radiation of the upper gastric region produces certain results. That may be due to thymus and it may be a vast number of things; however, the fact remains that in fifty-five per cent. of the cases he has relieved the projectile vomiting by a certain therapy, and in the other forty-five per cent. previous to resorting to surgery has tried x-ray and radium with a considerable degree of success.

I should like someone, if they have experience, to tell what porportion of their cases of projectile vomiting have gone on to operation, because the doctor has had only two out of one hundred and seventeen.

If those who are not trying radiation are showing a higher percentage of cases which prove surgical, we would have to take this paper pretty seriously. I think it presents a very interesting light on physiology and that is one of the chief reasons I have enjoyed following the work.

Dr. Gerald Cline, Bloomington: I have been quite interested in this paper. Dr. Easton brought up a point upon which I can give my personal experience—two operative cases out of about eighty-five.

I have not used x-ray on any of them just merely atropine and medicinal treatment. I do think, however, that I have been quite enthusiastic over the thymus and I will say that now I am rather going down the other side of the line. I had a case a short time ago—it happened to be one of twins with typical thymus symptoms, a child about nine months old. We x-rayed it and found an enlarged thymus. Treated with two treatments the child was better. We asked the mother to bring in the other twin. So far as we can tell both children showed about the same size thymus shadow.

One has symptoms and other does not.

That brings up another point as to what the relation is with the twins?

Two years ago I made a study of ear conditions in infants, and I remember at that time I reported three or four cases of projectile vomiting which I thought had a pylorospasm. I could not see any peristalic waves, but the symptoms were that of pylorospasm. However, I found an acute otitis and on opening the ears the projectile vomiting disappeared.

Was that a toxic process?

One other case of a thymus that was very interesting came to me about six weeks ago. It was a twenty-two day old child, had a perfectly normal history up to that time, when all at once it started crying, would not take its food; did not have projectile vomiting, but it had a dyspnea and a pallor and had a low degree of temperature. It had a coryza and a suspicious history of a thymic cry. The x-ray picture showed us what we thought was an enlarged thymus gland. We x-rayed the youngster three times and it began to get better. It started to nurse, and we were very well satisfied with the results. Still it had a temperature and a coryza.

At that time the child did not have a bulging fontanel. We sent them home and a week later they came back. The child had four convulsions in my office that afternoon. It happened another visiting pediatrician was with me that evening and he saw the case. At that time we found there was at least a certain amount of meningeal irrigation and we thought we would try a spinal puncture, which we did. We found the fluid under pressure. This child had three spinal punctures. Immediately after the first we relieved its spasms and it never had another. After three weeks the child was apparently improving as it should. I took it to Chicago to one of our leading pediatricians with the thymus pictures and its history. He felt that the thymus had nothing to do with it at all and that it possibly had an encephalitis rather than a thymus.

Such questions as these along with projectile vomiting should help us all to keep the thymus in mind.

As the old saying goes, "The proof of the pudding is in the eating," so it is with the results obtained by Dr. Barbour whom I wish to commend for his complete records and study of these cases.

Dr. J. W. Connell, Peoria: I notice that the filtration was not given in the x-ray statistics. I used 3 mm. of aluminum and I think it ought to be put in the record. It might be dangerous without that item, to the point of skin burns.

Dr. Orville Barbour, Peoria: Before answering questions in the discussion I would just like to say that I spent a day in Chicago before I started this paper, with Dr. Carlson and Dr. Luckhart at the University of Chicago, and Dr. A. C. Ivy. They gave me several valuable ideas and helped me with this paper.

It seems to me some of the discussors got the impression that I was talking about the thymus, when I wasn't at all. I simply wished to report my observations. I do not presume to blame the thymus or any other particular organ or part of the body. I do not think that we know enough about the thymus to blame it or any particular physiological function.

We obtained these results and are reporting them, and as I said in the paper, we do not attempt to explain them.

I wish to repeat, as Dr. Easton said, that in all of these cases other measures were tried first, measures that are commonly used, and only in those cases which these other measures did not relieve did we use radiology.

I think most of us, if it were our own child, would be willing to do most anything rather than operate.

We happened on to this method with a nephew of one of our leading internists in Peoria, and he will agree with me, I am sure, that they were anxious to do anything rather than operate.

In answer to the question about pyloric stenosis at birth, five of these twenty-one cases started projectile vomiting at two days of age, and it so happens that practically all of these cases, I think, with the exception of one were relieved with one x-ray treatment.

Dr. Connell and I feel from our observations on those cases that the earlier we get them the less radiology is required to relieve them. The longer standing the symptoms the more treatment is required.

In answer to the question about the emptying time, this was obtained in seven of our twenty-one cases. In those cases we administered the barium meal and ten minutes later took a plate and also looked through the fluroscope. In each of those seven cases in ten minutes' time none of the barium had left the stomach.

Then we rayed those cases four hours and eight hours later and from seventy-five to ninety per cent of the barium was retained in all of the seven cases at the end of the four-hour period.

We would have liked to give barium meals in all these cases but they were practically all private cases, and expense is an item, as you all well know.

Peristaltic waves were seen in nearly every case. As I said before, we feel definitely that all of these cases were true pylorospasms. They had not been relieved by diet or atropine or phenol-barbital. As to whether they were pylorospasms, or pyloric stenosis, I do not know. I have not found anything in the literature or anyone who agrees on which case is pylorospasm and which is pyloric stenosis.

Some of our leaders claim that all cases are pyloric stenosis. Others that pyloric tumor is a result of the pylorospasm. We do not know.

In reply to the question of the doctor from Decatur about the enlarged thymus without symptoms, I think that is the common experience of us all. It is so reported in the literature and the text-books and has been true in our experience. He made the statement that if in some cases the thymus was enlarged without symptoms he did not see how an enlarged thymus could produce symptoms in other cases.

Mind you, I am not blaming the thymus. On the other hand, I would like to ask him how he explains why we have symptoms sometimes of so-called thymic dyspnea with an apparently normal thymus shadow.

The size of the thymus apparently has nothing to do with the severity of the symptoms in so-called thymic dyspnea, even though it might prove to be involved.

In answer to Dr. Cline, as I reported in the paper twenty-nine cases were of toxic origin. A certain number of these were otitis media. I did not go into detail because of lack of time. There were one or two cases of acute encephalitis.

As I said at the beginning of my discussion, we feel that possibly from our experience this gives us a remedy other than surgery for this condition. We would like to have others try this method of treatment and report their results.

CLINICAL ROENTGENOLOGY*

M. J. Hubeny, M.D.

CHICAGO

It is quite obvious that a correct diagnosis is the first step to successful treatment. Modern methods of diagnosis are built on the basic sciences and are far less controversial; some of the findings are pathognomonic, while others require assembling, which is enhanced in proportion to the intelligence, training, experience and aptitude of the physician.

Pain, which is nature's semaphore, is an exceedingly important subjective symptom. With modern methods of diagnosis pain which is a purely subjective phenomenon can almost be classed as an objective symptom. Often, for example, pressure might elicit pain, or movement might produce it; regardless of the stimulation, the question of the precise nature of the pain, where and at what times experienced, are important factors and however subjective the pain might be from the standpoint of the patient, its interpretation always presents to the physician a problem in objective diagnosis.

The experience of roentgenologists shows that the severity, persistence, or total absence of pain

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are often at variance with the magnitude of the disease. Also that many combinations or complications exist.

Roentgen diagnosis often assists in explaining the cause of pain because it reduces the intangible to the tangible.

Pain as the initial or outstanding symtom is common to many pathological conditions not always easy to differentiate.

The first consideration should be to determine whether the condition is medical and amenable to medical treatment or whether the pain indicates the onset of some serious surgical condition which may require operative relief.

For instance a number of non-surgical conditions may cause upper abdominal pain; as, simple gastric indigestion, food or ptomaine poisoning or ingestion of poisonous drugs or substances; or conditions above the diaphragm may produce upper abdominal pain, namely, pleurisy, pneumonia, pulmonary abscess or infarct, thoracic aneurysm, mediastinal inflammation or neoplasm, etc.

It is therefore quite obvious that a method which can tangibly account for the pain is a valuable adjunct.

Diseases often present themselves in an atypical and bizarre manner, occasionally a pain syndrome is absent, or very severe or exaggerated from the standpoint of patient tolerance, and sometimes minimized by a hyposensitive individual.

There are many diseases in which pain is absent; so many complications and combinations, particularly in adult life, may co-exist, that one must be on the alert to recognize them because of their influence on one another, affecting, seriously, the prognosis or occasionally prohibiting a serious surgical interference.

It is quite proper to mention just a few diseases, namely, pernicious anemia, early sarcoma, and often carcinoma, in which pain is distinctly absent or mild and the termination fatal.

The foregoing remarks will impress one with the vagaries of the most important indicator of disease, pain.

Quite a few years ago the writer was impressed by the outcome of a case in which an x-ray examination of a hip was made; the findings were negative. Several weeks later, the knee on the same side was examined radiographically, this, also was negative. About one month later a film of this patient's left pelvis, hip and entire femur was brought in for examination, and it was quite evident that we were dealing with a metastatic carcinoma involving the middle of the shaft of the femur. Two phases of this case were interesting; first, there was no history given by the attending doctor of a previous breast amputation; second, knowing that referred pain to the hip or knee joint is a frequent occurrence, one should immediately examine the whole bony structure of the lumbar spine, the pelvis, hip, femur and knee on the affected side.

As a matter of common practice, a regional examination should be made. By so doing, a roentgenologist can dignify his work by bearing in mind a differential diagnosis, suggesting what roentgen procedures are necessary to enhance his own work and place himself in a recognized position of consultant.

Another case of referred pain, was a patient who was operated on for carcinoma of the breast with a subsequent epigastric pain; a tentative diagnosis of carcinoma of the stomach was made; a complete gastro-intestinal examination revealed a normal stomach, and a pathologic appendix.

Often a gastro-intestinal examination is made and the findings are negative, however, should one observe a dilated aorta, an exploratory operation can be averted by entertaining the possibility of a tabetic gastric crisis; here again we see the disingenuousness of pain.

Aortitis is curiously interesting, because the peculiar clinical symptoms such as dyspnea, particularly on exertion and a sense of oppression in the chest and frequent sighing respiration, indicating air hunger, are early manifestations common to numerous diseases, while pain and orthopnea develop later; and often how easy it is, to clarify the condition by a simple x-ray examination of the chest.

A swelling of any of the neck glands with or without pain should be accounted for by a neighborhood focal infection, it may be tonsillar, pharyngeal, or dental in origin; or it may be obstructive, probably a salivary calculus in the submaxillary gland; or a Hodgkin's or primary blood disease, or a sarcoma.

An interesting case in which anticipatory events were considered, showed a hard nodular

mass about the size of a pigeon's egg at the angle of the right jaw; duration about two months, no pain; x-ray examination of the chest revealed two typical sarcomatous nodules in the right lung; subsequent chest radiographs revealed numerous discrete metastatic nodules with ultimate death.

The moral in this instance was the early certitude of a fatal outcome, thereby eliminating unnecessary surgical, medical, or deep x-ray, therapy.

Following right in line with a foregoing paragraph in which was mentioned the desirability of a regional examination, two cases presenting some signs in common, namely pains in both shoulders, typify the necessity for thorough radiographic study. In one case the chest showed a large aneurysm of the transverse aortic arch, while the other showed a marked hypertrophic spondylitis of a fifth, sixth and seventh cervical vertebra producing a pain syndrome of the bronchial plexus. In both these instances the shoulder only had been previously examined and while this is quite proper, because it is sensible to examine the area apparently involved, one must look further along nerve trunks before a negative x-ray diagnosis is justifiable.

A cough or so-called nasal catarrh should bear radiographic examination from the standpoint of sinus infection or some pulmonary lesion. It is a singular thing how often silent infections occur, called silent, because pain is absent; however, other symptoms whether subjective or objective are present and should not be ignored.

One instance of thyrotoxicosis made a poor recovery until a so-called chronic catarrh proved, on roentgen examination, to be an antral infection. The silent sinus infections occur frequently.

Fractures present an interesting phase because some serious instances frequently occur with little or no pain.

The writer has had two cases of what proved to be impacted fractures of the hip in which both patients walked into the office, one used a cane, the other had no assistance whatever; both remarked of the needlessness of an x-ray examination.

Fractures of the smaller bones occur often, with little or no pain and very little disability, and it is legally and therapeutically unsafe not to have a radiographic examination.

It occasionally happens that a fracture of the lower end of the tibia, particularly a spiral fracture, is accompanied by a compensatory fracture of the upper end of the fibula. The latter is frequently over-looked because the major pain and apparent injury is at or near the ankle joint.

It is unwise to radiograph the skull over the scalp wound area only, because of the well known contrecoup fractures which happen only too often; so, in spite of the presence or absence of tenderpoints and visible contusions always use a four way examination, at least.

A few common experiences of all roentgenologists is the frequent occurrence of dental pathology without any local pain; this, of course, will be diametrically opposite to that befalling a dentist, because ordinarily a patient will consult a dentist for dental aches, hence it is quite understandable why it has taken a long time to drive home to the dental profession the actuality of dental infections as direct or contributory causes of disease processes elsewhere.

By way of an opposite illustration, a thorough radiographic examination of an acute fulminating osteomyelitis will be valueless, because a time interval is necessary to produce demonstrable bone changes; in the meantime, the surgeon will be obliged to make a clinical diagnosis with the necessary medical or surgical intervention, because waiting for x-ray confirmation might be disastrous to the patient.

Intermittent claudication is a little nicety in radiographic diagnosis because an arteriosclerosis of the blood vessels of the ankle and foot often can be demonstrated.

Hypertrophic arthritides may or may not be painful. It happens frequently that when both knees are radiographed, the one showing the most changes might at this moment be painless, although considerable pain was present some time past, while the knee that is most painful today shows little or no radiographic pathology at the present, but if examined at a later period, distinct pathology is evident and pain may be considerably subdued, absent or may continue to be severe.

Gastro-intestinal radiographic examinations offer a fruitful field explaining many abdominal aches. Anomalies in position are of such frequent occurrence that a diagnosis based on empirical topography is not permissible, because many of these variations can be predetermined

to laparotomy, thereby, in a great measure displacing an exploratory operation. Abnormal peritoneal rotation, descent and fixation may occur, making the stereotyped diagnosis of appendicitis a somewhat obscure case; we have all experienced the fact that an appendix might be anywhere in the abdomen, we might even be dealing with a complete transposition, therefore, depending on the pain-point of McBurney will lead one into error.

An instance of multiple pathology as determined radiologically explained a complete clinical history. The principal features as described and experienced by the patient were: sudden pain in left lower chest, co-incidental with strenuous lifting, presence of previously unnoticed tumor in left hypochondriac region, and dyspnea, which has continued, a total duration of four months; pain in chest more or less continuous and now accompanied by abdominal pains on the left side. Clinically a diaphragmatic hernia was seriously diagnosed. Radiologically a chronic sub-diaphragmatic pleurisy with adhesions was demonstrated complicated by multiple diverticulitis of the ascending and descending colons, the cecum and the ascending colon were situated in the left iliac region while the hepatic flexure was located in the customary area. The tumor mentioned earlier, turned out to have been a lipoma and upon close questioning had been present for a long time, so it had no direct bearing on the present condition other than confusing the issue.

A patient complained of severe low right sided cretion, complained of severe low right sided backache; radiographically, a deformity of the third, fourth and fifth lumbar vertebra was apparent, the right halves of the bodies were smaller than the left, especially the fourth, the right transverse process of the latter was small and a crow's beak osseous deposit about one-half inch in length protruded to the right, the articlar facets appeared poorly developed. Clinically diagnosed as relaxed ligaments with preternatural mobility. An Albee's transplant was advised. The patient was exceedingly reluctant to have this done and wisely so, because an eventual radiologic diagnosis of chronic appendicitis was made and total relief obtained. The appendix, the terminal ileum, cecum and bladder wall were extensively involved in adhesions, which when modified, released the peritoneal pull over the psoas muscle thereby relieving the intense backache.

All roentgenologists have experienced many cases in which pain or the absence of pain assisted in proving or disproving a clinical diagnosis, which syndrome could be explained by a thorough radiological examination, and while this paper, in a measure may appear to be redundant, an occasional repetition or amplification seems desirable to bring before us the sureties, as well as pitfalls, because in spite of the instruments of precision we now have, judgment and experience are enhanced by the unusual incident rather than the usual.

DERMATOLOGICAL ASPECTS OF EARLY SYPHILIS.*

(Salient Diagnostic Features of 109 Cases with Therapeutic Notes).

CLEVELAND WHITE, M. D.
CHICAGO

It is now generally conceded that the earlier treatment can be instituted in a luetic infection, the better chances the patient has for an ultimate cure or at least a permanent arrest in this protean disease. Early diagnosis and institution of proper treatment will usually prevent the later serious sequelae of visceral and central nervous system involvement. Thus the early clinical evidence and concomitant important laboratory aids can well stand to be briefly appraised and analyzed as to their practical value.

An opportunity to observe, study and follow the immediate results of therapy in 109 cases of early syphilis forms the basis of this report. Most of these patients were seen at the Central Clinic of the Chicago Health Department, which handles the clinical and therapeutic cases of the Division of Social Hygiene. It is the especial aim of this division to diagnose and treat early infectious syphilis of the indigent resident and floating population as a public health menace. A number were seen in the Dermatology Department of the Northwestern University Medical School and a few in private practice. Thirty-two patients had chancres, twelve had chancres with associated secondary manifestations and

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sixty-five had secondary findings in some form or other. Ninety-two were male patients and seventeen were female. That early syphilis is disappearing from the medical world is only a myth.

MORPHOLOGY OF CHANCRE.
(With Clinical Variations).

With the recent preponderant emphasis upon the importance of the laboratory findings in the diagnosis of early syphilis, the natural tendency has been to undervalue the clinical findings in a suspected primary lesion. The salient features of a chancre (both genital and extragenital) should be borne in mind in every branch of every day medical practice not only for the necessity of endeavoring to make an absolute diagnosis but also to arouse one's suspicions so as to have the proper laboratory procedures thoroughly utilized. Occasionally laboratory examinations are negative or indifferently performed and a decision has to be made whether the patient has syphilis or not. Often then an absolute diagnosis can be made if the morphology of the lesion and the associated clinical data are thoroughly studied. In the atypical cases, the diagnosis, of course, depends entirely upon positive laboratory findings.

The uncomplicated chancre is either an erosive or ulcerated papule, tends to be single, has an indurated base with a sharply defined border. The incubation period varies from twelve to forty days and runs an indolent course ranging from three to eight weeks. The satellite lymphadenitis is a very constant and important characteristic feature. In the genital chancres, the involvement is usually bilateral, beginning to be noticeable some seven days after the appearance of the primary lesion. The individual glands are usually discrete, firm, non-inflammatory, freely movable beneath the skin and are practically painless. In the extragenital chancre, the adenopathy is usually unilateral and decidedly pronounced, even in lesions near the median line.

In chancres complicated by other types of secondary infection as with ordinary pus or chancroid organisms, they may assume almost any conceivable morphological form and of course, can occur on any part of the glabrous skin. Spirocheta pallida may invade such lesions as chancroids, herpes progenitalis, scabetic burrows and other superficial dermatoses. In these numerous atypical cases the laboratory procedures assume vast importance, as before stated. In many diseases as diphtheria, tuberculosis, and gonorrhea, the search for bacilli is extremely important and diligently performed; in early syphilis the most important laboratory procedure, the darkfield, is often grossly neglected or indifferently used—a sad commentary on 20th century syphilology.

Every suspicious lesion should be repeatedly subjected to a darkfield examination (at least three times), not waiting on nor relying on the blood Wassermann test in an early case. Only a fair percentage of chancres are absolutely typical —this finding has been emphasized by Stokes. McDonald has found many moist lesions on female genitalia to be chancres by darkfield examination, although the lesions *per se* were not syphilitic. In women, cervical erosions may be chancres as syphilis tends to be atypical in the female; hence, use of the speculum is essential for a complete physical examination in a suspected case.

Laboratory examinations of value in chancre. As the blood Wassermann becomes positive in only 36% of chancres at the end of one week to 81% at the end of five weeks (Craig), the darkfield examination is the most important laboratory procedure in the immediate diagnosis of a suspected early primary lesion. The blood Wassermann is usually positive by the end of the sixth week. The darkfield examination is best during the first two to four weeks—ranging from a possible 95% to 80% in that length of time (Moore; Stokes and McFarland). The darkfield examination should be performed on the lesion repeatedly and if persistently negative, the base of the lesion and the adjacent lymph nodes should be aspirated with a small amount of normal saline in the search for spirocheta pallida. Of course, no local treatment of any type should be instituted during the examination for syphilis except normal saline wet dressings. Diagnosis of the chancre before the appearance of a positive Wassermann or secondaries promises the highest percentage of complete or abortive cures (Moore and Kemp). All suspected lesions should have a Wassermann follow-up for at least 20 weeks taken at intervals of ten days to two weeks. History is often misleading and non-dependable.

Description of Spirocheta Pallida. Most saprophytic spirochetes can be removed from a sus-

pected cutaneous lesion on the genitalia and elsewhere by gently but thoroughly cleansing with a normal saline swab. The spirocheta pallida has 8 to 24 delicate spirals, moving slowly in the direction of its long axis but always keeps its regular contour although occasionally bending at an oblique angle. The spirocheta refringens is occasionally encountered around the genitals; it does not maintain its regular contour when it strikes an object and is coarser with more rapid movements; the spirals are decidedly irregular. It is usually not present if all crusts have been thoroughly removed.

Smears from the mouth may be contaminated with spirocheta macrodentium, microdentium and buccalis. The macrodentium is very coarse. The other two simulate spirocheta pallida very closely and must be studied as to motion, regularity of coil, and length of the spirals. The decision will often have to be made on clinical grounds in mucous patches of the mouth and confirmed by a blood Wassermann.

Analysis of Forty-Four Chancres. Of the forty-four chancres observed, nine were multiple ranging from two to twelve; the multiple lesions were all found on male genitalia. *Thus almost 20% were multiple* and multiplicity of chancres can quite often occur although the usual statistics are about 10%. No effort was made to pick cases but taking all positive cases (either proven by laboratory methods or typical clinically where the laboratory had failed) in the course of practical every day syphilology. Seven of the thirty-five single chancres were extragenital (20%)—*extragenital primary lesions must be constantly kept* in mind. Several very interesting and instructive diagnostic puzzles presented themselves in this series of primary lesions.

CASE REPORTS

Case 1. Value of Darkfield Examination.

A male of 28 had a small eroded area at tip of urethra of 10 days' standing. Inguinal adenopathy was very slight. The lesion itself was not strikingly a chancre but the darkfield examination was positive, thus illustrating the value of such an examination in all suspected lesions anywhere on the body.

Case 2. Value of Clinical Criteria Combined with Blood Serology.

A young man of 24 had had a penile lesion of three weeks' standing when first observed. It had the typical morphology of a primary lesion with an associated characteristic inguinal adenopathy, and he was informed he had syphilis. He had been previously treated by a drug store clerk who assured him it was not syphilis and he was given a powder to use. As the patient was still a strong believer in his "druggist syphilologist," he was skeptical of the clinical diagnosis. Repeated daily darkfield examinations of the lesion were negative and a laboratory technician also informed him that it could not be syphilis. His blood Wassermann was strong positive, so with this confirmative information he allowed treatment to be instituted. Unqualified diagnoses in such cases by self-acclaimed "drug store and laboratory syphilologists" lay themselves open to severe censure.

Case 3. Gland Aspiration.

A man of 43 had a penile lesion of three weeks' duration, being an indurated papule with considerable erosion and a bilateral discrete inguinal lymphadenitis. He stated that he had had a darkfield examination which had been negative. This examination was repeated several times and likewise proved negative. An adjacent lymph node was aspirated and many spirocheta pallida recovered. These examinations were carried out in spite of the patient's statement that it all had been caused by a "bruise."

Case 4. Extragenital Chancre.

A man of 44 had a lesion on left superior portion of the tongue for 2½ weeks with a discrete enlarged lymph node in deep lower cervical chain near the clavicle. Three weeks previous to the onset of the lesion he had drunk from the same bottle as another man, whom he found out later to have suffered at that time with "pox" of the mouth. Repeated darkfield examinations of the lesion were reported negative and the blood serology was negative. The typical appearance of the lesion with an unilateral bubo so diagnostic of extragenital chancres was considered sufficient to make the diagnosis of a primary luetic lesion; it vanished completely under neoarsphenamin. An epitheloma had to be ruled out but there were not enough striking characteristics even to warrant a biopsy.

Case 5. Multiplicity of Chancres.

Chancres may be multiple as well as simple, although they are usually solitary. A man of 42 had twelve eroded papules on the shaft of the penis for two weeks; the adjacent inguinal glands were bilaterally enlarged, firm and discrete. Darkfield examinations of the lesions were positive. Several patients were seen with five chancres and several of this group had three primary lesions.

Case 6. Value of Wassermann Follow-up.

A man of 37 had had a penile lesion of one week's duration which had been darkfield and serologically negative. The lesion did not present enough characteristics to warrant the clinical diagnosis of syphilis but suspicious enough to warrant further investigation. The blood Wassermann was repeated at weekly intervals and became positive on sixth test. No clinical nor cutaneous evidence of a secondary syphilide could be found.

SECONDARY SYPHILIS

Early or acute syphilis includes the so-called secondary stage as well as the stage of the initial lesion; there is no real dividing line between the chancre and the secondary syphilide, for the infection is generalized during both clinical eras. While this second incubation period is usually six weeks, it can vary from 12 to 90 days (Pusey). The secondary stage may supervene before the disappearance of the primary lesions; twelve cases were observed of this type and of course such a status of affairs immediately clinched the diagnosis. While the blood serology should be positive during a florid secondary syphilis, there were certain diagnostic features in the 65 such cases studied. These features usually formed such a characteristic symptom complex that an absolute clinical diagnosis could be made in a very high percentage. The salient features will be briefly reviewed; they would at least arouse one's suspicions to draw a specimen of blood for a Wassermann test. The blood serology in all proved to be moderate to strong positive. The darkfield examination is valuable in puzzling suspected mucous patches and flat condylomata.

The symmetrical generalized distribution of a cutaneous eruption, indolent in character without any real degree of pruritus, associated with papules of palms and soles, generalized adenopathy, mucous patches in the mouth, a patchy alopecia especially of the scalp, or flat condylomata in the ano-genital and other prominent intertriginous areas makes an absolute diagnosis of secondary syphilis. In every day clinical work however, there are usually only a few of such associations present; often there is only a solitary finding of the above mentioned and of course, there can be various groupings of all these aforementioned findings. A blood Wassermann should be taken in all either to confirm or to aid in the diagnosis.

TABLE 1

Lesions of 65 cases of Secondary Syphilis Observed

Macular (roseola)	4	
Maculo-papular	7	
Papular	27	
Grouped Follicular & Miliary Papular	2	
Annular Papular	8	
Papulo-pustular	2	
Rupial	1	
Mucous Patches	6	(10)*
Alopecia	2	(3)
Condylomata lata	4	(7)
*Total cases observed	65	

TABLE 2

Lesions of 12 Secondary Syphilis Associated with Involuting Chancre

Macular (roseola)	1
Maculo papular	2
Papular	9
(2 also involved palms and soles)	
Mucous Patch	(1)
	12

There are several interesting features in the foregoing tables which should be amplified. While the macular eruption is first to appear, by far the largest number in this particular group when observed was the papular variety and its variants. In the papular group, lesions on the palms and soles are quite diagnostic when present; in all there were 9 in whom these were present and in two patients these were the only lesions present.

The annular papular or ring shaped papular lesions are strikingly diagnostic; while they usually occur particularly on the face in the colored race, two were observed in white men. One of the best examples that I ever have seen was on the face of a young white woman (not in this series).

This typical patchy non-scarring alopecia was observed in three cases; in two, it was the only finding. In one of these the eyebrows were involved along with the scalp. The lesions of the mucous membranes and muco-cutaneous junctions should be borne in mind for diagnosis and because of their contagious character, especially the so-called "split papules" at the comissures.

Persistent "sore" throats due to mucous patches and not associated with any cutaneous findings are occasionally perplexing diagnostic problems and may be called "trench" mouth, etc. The lesions are flattened and abraded syphilitic papules; they are rounded or oval in outline, may be slightly elevated and grayish in color. These patches may be slightly painful, sometimes extremely painful. The blood Wassermann should be strongly positive.

Vesicular syphilis in an adult are extremely rare and for practical syphilology, such eruptions can be considered not syphilis. The bullous syphilid of infants in a congenital infection is a noteworthy exception.

The possibility of a superimposed infection upon luetic sore throat does occur but is, no doubt, a rarity of the first degree. A man of 26 had a sore throat of two month's standing when first seen. Some time previously he had been

given diphtheria antitoxin when a smear from his throat had been positive for B. diptheriae. His throat felt considerably better but still remained sore. Darkfield examination then revealed spirocheta pallida and the blood Wassermann was reported positive. All cleared with specific treatment.

THERAPEUTIC NOTES.

In early syphilis, arsphenamin is the drug of choice although there are but few reliable statistics to substantiate such a statement. For practical every day syphilology neoarsphenamin is used by the vast majority of clinicians. The higher percentage of reactions to the "old" arsphenamin, its more difficult associated technical features and slow rate of administration easily sway one to neoarsphenamin. Consequently, a neoarsphenamin product that has passed the requirements of the U. S. P. H. S. can be used with almost the same results.

For intramuscular injection, sulpharsphenamin is used but care must be exercised in continuing its use where there are any reactions however mild, for serious toxic blood dycrasias can occur. All advertisements stating its freedom from reactions are decidedly misleading. I know of two fatal aplastic anemias which followed its persistent usage in spite of numerous warnings in way of cutaneous reactions and purpuras.

Bismarsen is gaining very favorable comment from many experienced syphilologists but its worth is still to be determined. Bismarsen is a combination of arsphenamin and bismuth and is administered intramuscularly.

These drugs are all decidedly spirocheticidal and measures must be instituted to build up or preserve the patient's resistance. Mercury by injection and by inunction has been used until the advent of bismuth which must be given intramuscularly. It is yet too early to state the absolute worth of bismuth but it is filling a very definite place in our antiluetic armamentarium. Either bismuth or mercury should be used toward the end of an arsphenamin course or immediately thereafter to prevent the patient's resistance from being taken from him and suffer severe relapse of his infection which may strike important organs as the heart, eye and central nervous system.

New and untried antiluetic drugs and combinations should not be used on the recommendation from some "high powered" salesman of a manufacturing pharmaceutical house. There are numerous excellent clinics in America where one can easily get ready information concerning the accepted drugs of choice.

SUMMARY

The dermatological features of 109 cases of primary and secondary lues are briefly reviewed with the importance of darkfield examination and blood serology cited, especially the darkfield.

All suspected luetic infections should be thoroughly investigated in order to prevent in the positive cases the later serious visceral sequelae of syphilis by early institution of the proper treatment. In view of the established observations that patients starting treatment during the positive darkfield but seronegative stage have the best opportunity for cure, the establishment of an early diagnosis is of paramount importance.

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DISCUSSION

Dr. W. B. Wakefield, Peoria: I can assure you that the paper was a very good one. It is a very able resumé of the subject and I have always felt like the making of a diagnosis of syphilis is an exceedingly important thing. It is much more important to make a diagnosis in the case of syphilis than perhaps most any other chronic disease early, because the results undoubtedly are much better the earlier you can get the facts.

There are one or two points about the diagnosis of the secondary, ordinary roseola that I might just add to the doctor's paper. Oftentimes in removing the clothing from the person with early secondary eruption the eruption is not easily seen until the patient's skin becomes chilled, which brings out the color in contrast much plainer.

The history is not very important. I think we all have to learn to take the history of a luetic individual with considerable latitude because it is certainly not reliable at all, and a great many of us perhaps have failed to make a diagnosis because we have paid too much attention to what the patient had to say, rather than what we could see and find out otherwise.

The glands, as the doctor pointed out, are exceedingly important and are very characteristic and with a little practice can be differentiated from most any other type of enlarged gland.

Also, I don't believe he mentioned that, perhaps not frequently, but occasionally, itching is a symptom of the disease. Perhaps the most important thing in a positive diagnosis is the finding of the spirocheta, and where all other methods fail sometimes the therapeutic test of a dose of arsenic of one kind or another will

produce a clearing up of the lesion, and also will make a Wassermann or a Kahn more reliable.

I want to congratulate the doctor on his paper.

Dr. Goldye Hoffman, Chicago: As stated by the essayist, primary lesions in women are apt to be atypical and easily overlooked; because of this fact and being obscured by the parts many can be found by examining the sexual partners of infected males, by making a vaginal inspection in women who have cutaneous manifestations and by routinely looking for suspicious erosions in women suffering from a gonorrheal infection. Hence, the use of the speculum is indispensable and the darkfield makes the diagnosis absolute. Solitary cervical erosions whose margins do not invade the external as should always be regarded as suspicious and darkfielded according to Stokes.

Stookey has recently called our attention to primary lesions manifested by a generalized edema of the cervix. The satellite inguinal adenopathy, which Dr. White has so well emphasized as an important and common finding in the diagnosis of lesions of the external genitalia is absent in the cervical lesions because of the anatomy of the draining lymphatics.

Just a couple of weeks ago a girl was sent to the clinic with positive gonococci and a 4+ Wassermann. She refused to take treatment for syphilis, saying that she had had a negative blood test five weeks previous. On inserting the speculum a suspicious looking erosion on the posterior cervical lip was found. Darkfield showed presence of spirocheta.

Dr. Cleveland White, Chicago: The discussion has been very fruitful in bringing up several important phases which deserve more emphasis than accorded in this paper covering a rather large subject.

Dr. Wakefield stressed the importance of looking for the early macular rash—the roseola—which is usually the first (and sometimes the only) cutaneous manifestation. This is the most common secondary and often only found by stripping the patient and examining under a good light. In this particular series the papular finding was the most common encountered. As Dr. Wakefield stated, the history is very unreliable and often grossly misleading. If syphilis is suspected, a thorough investigation should be instituted regardless of the patient's economic or social status.

Sulpharsphenamine is believed to be more effective when given intramuscularly than when injected intravenously and thought to produce fewer serious reactions when given by the intramuscular route. It is the only arsphenamine well tolerated intramuscularly and is an excellent preparation to use in infants with early congenital syphilis, in very fat patients and those with difficult veins, and in selected cases of cardiovascular syphilis. The unusually high number of serious reactions in adults (dermatitis and blood dyscrasias) have led many not to use sulpharsphenamine unless unable to give one of the other arsphenamine products intravenously. When used by either route, especially in adults, one must be constantly on the alert for any reaction, however mild.

Dr. Hoffman's statements regarding recent findings regarding a chancre in the female open a field worthy of more serious study and further detailed clinical observations with laboratory checks. While the lesions of syphilis tend to be atypical in women and usually invade the viscera with less organic changes than in the male, the seriousness of the infection in the female as a potential source of congenital transmission is sufficient reason to ferret out any possible early case.

In conclusion, darkfield examinations in any suspected primary lesion and the blood Wassermann test in any suspected secondary exanthem are invaluable aids in establishing or confirming the diagnosis of syphilis. The earlier that a positive diagnosis of syphilis can be made the better ultimate results the patient will derive from his treatment.

INTRAOCULAR HYPERTENSION AND THE INTERNIST*

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We all feel a general pessimism as to the entire problem of introcular hypertension. Theories have been presented; new ones are and will be presented in the future. In the light of our present knowledge this subject is still very unsatisfactory. Occasionally we encounter very gratifying results both medically and surgically and again our best efforts only meet with dismal failure. The very multiplicity of theories and treatment of the subject of intraocular hypertension make it only apparent that this condition still belongs to a great measure in the field of speculation. Nevertheless, it is an ever present problem. While this problem, even though so largely speculative requires not only the most careful consideration and study but also systematic investigation and research, it may be that the repeated consideration of this subject may ultimately suggest a method of approach that will be productive of results.

A large number of conditions obscure a generation ago are now relegated to the realm of either focal or systemic infections and are being more or less successfully handled from this point of view. As long as we have no etiological theory that is entirely satisfactory we can ill afford to be dogmatic.

Several years ago Risley gave us a fairly decent working basis for our problems of intraocular hypertension. While this quotation has been cited many times it is still worthy of repe-

*Read before the Section on Eye, Ear, Nose, Throat, Illinois State Medical Society, May 22, 1929.

tition. "Glaucoma is a disease coming on at an age when wear and tear, harrassing vicissitudes, misfortunes, exposure, overwork and vicious living have sapped the physiological foundations of life; when infection has found entrance to the organism through the doorway of the epithelium and when a variety of toxic, autotoxic and other influences have set up vascular and cardiovascular diseases, associated nephritis, uveitis, high blood pressure, etc. Glaucoma, in fact, rarely occurs in individuals in good general health."

The opening sentence of Elliot in his Treatise on Glaucoma is: "The term 'Glaucoma' is not the title of any one single disease. It is rather a convenient clinical label for a large group of pathological conditions, the distinctive feature common to all of which is a rise in the intraocular pressure."

With our limited knowledge of the cause of this condition and with such excellent warnings we are surprised that so little attention is paid to the general physical condition of the patient. In fact, we have all been so interested in the theories of the mechanism of intraocular hypertension and the various spectacular treatments for its relief that we have more or less lost sight of the patient. Remote instances of the reduction of intraocular hypertension by relief of the physical condition is of no great value. Almost all of us can cite an occasional case where the removal of infected teeth, tonsils, appendix or gall bladder improved the intraocular hypertension, but this in itself does but give us the right to expect the same results in the next case we meet. We do not claim that every case of intraocular hypertension can be improved by the removal of focal or systemic intoxication but we do insist that this is an auxiliary means of treating a very unsatisfactory condition. As long as we are in doubt as to the exact knowledge of intraocular hypertension, let us avail ourselves of every opportunity to combat this condition and the internist is one of our best allies. Vascular hypertension is now being managed along these same general lines and we meet vascular hypertension in a vast proportion of our intraocular hypertension cases.

Vascular hypertension leaves its devastating mark on nearly every organ of the body and the eye is not universally exempt. While every patient carrying vascular hypertension does not always show intraocular hypertension yet it is seldom that intraocular hypertension is not accompanied by some vascular changes. In the various vascular changes the internist looks for focal or systemic infection or intoxication. A systemic intoxication that is frequently overlooked by the oculist in ocular hypertension is syphilis. In Elliot's latest and very comprehensive "Treatise on Glaucoma," syphilis is mentioned at no time as a causative or relative factor in intraocular hypertension. In almost any theory that we accept of intraocular hypertension lues should be considered. Whether lues has any influence on the pathogenesis of intraocular hypertension we are not in any position to comment but we cannot see how it can be excluded from consideration.

Every oculist can call to mind instances where he has operated for intraocular hypertension with what he considered absolutely perfect surgical technique only to find the vision gradually and surely fail to blindness and with the post operative tension always within normal limits. Elschnig regards glaucoma without or with very little hypertension as exceptionally serious. Almost all symptoms except tension are present to substantiate the diagnosis. Miotics and operative procedures in such cases are of little avail. Elchnig maintains that the atrophy of the nerve elements is due to the change of the intraocular fluids. This is not purely a local condition. but must of necessity be secondary to some vascular or neurological change. In instances of this kind only the most rigorous investigation by the internist is of any value, and it is here that we meet our greatest difficulty, unless we can impress the internist with the seriousness of the visual prognosis. It may be a general disorganization of the secretions throughout the entire organism. It may be a general endocrine dyscrasia or systemic infection —that is not our particular worry, but the problem of the internist; however, it is our duty to prod him into the investigation. As a rule, we must be dogmatic with the internist and insist on thorough examination.

The problem of focal and systemic infections and intoxications is becoming a perplexing one. When Benedict and Leon White insist that a devitalized tooth is as much a menace as an actu-

ally abscessed root as demonstrated by x-ray, how are we to consider an old chronic appendix, gall bladder, prostate or cervix. Of course, this again is a problem for the internist, but does this same internist realize our position in dealing with vision? We doubt it. Yet, many times we have been satisfied with the verdict of the internist and have operated only to find that the visual loss progressed and after a more searching investigation find some general pathology that seemed accountable for the condition. We wish to cite a very interesting example.

A man aged 50 was first seen by us in 1920. He was a farmer and gave a history of having been struck in the left eye many years before with a hedge thorn. Two months before we saw him he complained that his vision in the right eye was noticeably hazy. When we saw him the first time we found that the left eye was staphylomatous and stony hard. The vision in the right eye was 15/10-3, but the tension was 52 with a Gradle tonometer. His family physician gave him a physical examination; he was advised to have his teeth extracted. The tension in the right eye was better for a time, but returned to the original pressure. He would not submit to an operation on the eye, but finally did consent to having his tonsils removed. Again a short period of improvement in the tension, but we were again after a few weeks confronted with a high introcular tension. After about six months of observation and with the fields and vision failing we insisted upon operation. An iridectomy was done. The tension improved for a period of months and then returned to its original status. After a year the left eye which was stapholomatous became irritated, red and painful. As this was a blind, hideous eye, anyway, we decided to remove it. Upon his entrance into the hospital a routine blood and urine was done and we discovered for the first time that he had a positive Wassermann. Upon anti-luetic treatment the tension rapidly returned to normal and has remained within normal limits since. His fields and vision have remained stationary since 1921. If we had had a complete return of this man's physical condition the first week it is doubtful that we would have had as much loss of vision or the difficulty that we experienced.

We do not wish to convey the idea that we think this condition can be handled solely by attention to the general physical condition and miotics. In a condition as unsatisfactory of management as intraocular hypertension no one course of treatment can be followed in all cases. Of course, consideration must be made as to when we arrive at our diagnosis. We assume that the earlier a diagnosis can be made the less pathology is demonstrable. If a diagnosis can be established before definite pathology is present the better opportunity we have of postponing operative procedure. The greatest aid we have in the early management of these cases is the internist. Later in the disease when pathology is definitely established nothing short of one of the operative procedures is of any avail. Yet with only this outlook ahead the internist should not be neglected, because he may often save us embarrassment either during or following operation, for we all know how disappointing operations can sometimes be in this condition.

When operation is imperative we should still turn to the internist. The exact knowledge of the patient's general condition should be known. Perhaps some of the expulsive hemorrhages could be avoided by venesection immediately preceding operation. Perhaps some of post operative disasters could be avoided through cooperation of a competent internist.

Many of the so-called glaucoma cases are in reality cyclitis with intraocular hypertension. We have all had the experience of following a family physician who was keen enough to detect hypertension and handled the case with miotics until an iris Bombe developed. Of course, the oculist can readily make a differential diagnosis between cyclitis and chronic simple glaucoma, but where we are confronted with a cyclitis with tension we are helpless without the aid of the general medical man. Just recently we have had the experience of having a patient referred with a diagnosis of glaucoma and the information that the patient had been placed under miotics. Careful investigation showed the characteristic findings of cyclitis. The family physician was considerably perturbed when we sent the patient back with the pupil fully dilated and instruction to investigate the patient's general physical condition. The intraocular tension in cyclitis cases can assume proportions that are sometimes alarming. However, such cases are almost entirely in the realm of general medicine, with the oculist as merely a consultant.

We as oculists are not making our diagnosis of intraocular hypertension early enough. This may not be in any manner our fault in a large majority of cases. We in many instances do not see the patient until irreparable damage has been done. These are usually the drifters and they will probably drift away from us before we have

an opportunity of completing our findings or instituting satisfactory means of combating the hypertension. On the other hand, we have patients under our observation for years and our records give us an indication of what their normal vision should be. When we find any deviation from normal in these patients it is our duty to investigate and if they are in the presbyopic age, intraocular hypertension should be one of our first concerns. We do not think that we should wait for definite cupping of the disks, because when we have this condition we also have irreparable damage. The light differential and the paracentral scotoma are our earliest findings and it is upon these that we must base our early diagnosis. It may be only by repeated observations that we can demonstrate any hypertension. We may and often do find difficulty at this stage of convincing the patient that there is anything dangerously wrong with the eyes. It is at this point that the internist may be of great value to us. He may be able to impress that patient more favorable than we can or failing in this he may be able to relieve the patient of some of his pathology and indirectly some of his intraocular hypertension.

Dogmatically treating intraocular hypertension either with miotics alone or surgery alone is rank empiricism. For ages headaches have been treated in this manner and the laity has lost faith in the medical man because of it. Surgery has its risks, as we all know, and while we are fairly convinced that the large majority of true chronic simple glaucoma patients eventually come to operation why should we submit them to the risk of surgery sooner than is absolutely necessary? If we can by co-operation with the internist postpone the operative risk without danger to the fields and vision we are practicing ophthomology in its highest sense. But what is the danger of such conservatism? We are liable to give the patient a sense of false security and he may neglect to give us the opportunity of regular observations. Many of the patients may apparently disappear for months to return with considerable loss of fields and vision. This sense of false security may be instilled by the internist unless he can be made to realize the seriousness of the ocular condition. However this risk is no very valid argument for the man who insists on early surgery. We believe that by cooperation with the internist and by the use of miotics that surgery can be postponed and in some cases obviated entirely. However, we must have the patient under constant observation. When we find fields and vision failing we must resort to surgery and immediately. Our argument is simply this—that surgery can be avoided or postponed in many cases of intraocular hypertension by relief of the causative factor, an element that is being largely disregarded by the oculist, the general physical condition.

Let us heed the masked warnings of Elliot and Risley. The one states that intraocular hypertension is only a symptom and the other that it rarely occurs in a healthy individual. In the first case it is a symptom of what? A symptom of some metabolic imbalance. Risley says that it rarely occurs in a healthy individual. Consequently, drawing our conclusions from two old masters we would say that it is a symptom of something wrong in a person in poor physical condition. Thus when we meet intraocular hypertension we may expect to find an individual in the stage of physical wear and tear, whose organism has been affected by the changes of advancing years.

DISCUSSION

Dr. Thomas D. Allen, Chicago: Much work has been done on metabolism; first, because of a desire on our part to add to the wealth of mankind and second, because of a desire on the part of scientists to add to general knowledge. As a result, we should be able after studying them to give our patients some worth while advice or treatment. It is rather discouraging to refer these cases to the internist, because nearly always they are sent back with the statement that no important pathology can be found. If our knowledge of the chemistry of the body were increased, and it is gradually increasing, we might be able to find some causative factors. Dr. Roth's reference to syphilis was most interesting. Of course, it should be treated wherever found. Syphilis will chance the chemical metabolism of the body, and it is conceivable that as a result ocular hypertension may follow. With regard to high blood pressure. We have found few cases of ocular hypertension with high blood pressure. In fact, when the blood pressure is taken as a rule we find that it is remarkably low. Of course, if the blood pressure is high any treatment that is directed toward lowering it will usually be of benefit to the patient. So far as early diagnosis is concerned, it seems to me that is our vital point of attack. The earlier we can diagnose it the more time we have to treat the patient before the necessity of operation and the more time we have in which to

co-operate with the medical men. We should insist, as Dr. Roth has said, upon the medical man's investigation of every possible source, every possible cause of deterioration of the body. So far as venesection is concerned, that is a mighty good idea. A similar idea is that sugar, injected intravenously before operation, will bring down the ocular pressure and may prevent an expulsive hemorrhage.

Dr. E. V. L. Brown, Chicago: There must be something in the general condition of the patient that is the causative factor. The only series I have studied was with Dr. Irons, fifteen cases. We could find many evidences of previous trouble in the history, laboratory findings and the course of the case, but there was nothing we could put our fingers on as to the cause of the glaucoma.

Dr. Harry Woodruff, Joliet: The point of syphilis as a causative factor in glaucoma is of interest. The work of Elliot does not mention the word syphilis once in connection with glaucoma. I searched carefully to find out what his idea was with regard to syphilis as a cause of glaucoma. Of course, it is a factor in secondary glaucoma, because it is a very prominent factor in uveitis. Dr. Brown answered that question as to the relationship of the general physical condition to primary glaucoma. So far, we have not been able to put our finger on anything that we could say definitely was responsible. We must distinguish between simple glaucoma and inflammatory glaucoma. When we come to talk about health and disease we cannot distinguish between the conditions. There is no such thing as absolutely perfect health, so that the internist, if he goes far enough, will find something wrong with every individual. It is a far cry in many of these cases to pin this or that condition down as a cause of glaucoma. Even syphilis; it is not absolutely true that that is a factor in glaucoma. Having an internist in my family, I am more than ever strong for examination by an internist. The more information you have about your patient the better able you are to properly take care of him. I would not be in favor of going very far in a case of chronic simple glaucoma without all the information I could get—Wassermann, blood pressure, and a lot of other things, but that takes more or less time. If my patient has chronic simple glaucoma and I am absolutely satisfied with the diagnosis, of course, I would want to know the other conditions, but if they were normal and satisfactory I should not be in favor of postponing operative procedure, because I am quite convinced that there is no cure for chronic simple glaucoma other than operation.

Dr. Derrick T. Vail, Jr., Cincinnati: I read a recent article by Redslob of France. He has done some work in injecting certain substances into the vitreous of some patients, hopeless cases, measuring the intraocular tension before and after. If the hydrogen ion concentration was raised, the tension would be raised, and vice versa. He used this as a method of reducing intraocular tension by injecting solutions which have a low hydrogen ion concentration into the vitreous. This made me believe that it is not always the foci of infection that have everything to do with the condition, but the state of the vitreous, whether swollen or reduced in content. A substance that will cause the vitreous to shrink I believe will have an effect on the tension.

Dr. Jesse H. Roth, Kankakee (closing): We may have alarmingly high vascular hypertension that may run on for years, and yet not cause the patient any trouble. We have intraocular tension which does not cause any loss of fields of vision. In a vast majority of patients with intraocular tension, with glaucoma of the non-congestive type, we have a history of constipation almost invariably. When the internist takes these patients in hand and ends their constipation we have a reduction for a time in the intraocular tension. There is no question that these non-congestive types of intraocular tension almost invariably come to operation.

TRANSFUSION OF WHOLE BLOOD IN THE TREATMENT OF ACUTE HEMOLYTIC STREPTOCOCCIC SEPTICEMIA*

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There probably has been no recent surgical therapeutic procedure that has received such a varied opinion as to its efficiency as the transfusion of blood. In the treatment of acute streptococcic septicemia, blood transfusion has played a leading role. Much was expected, and in many instances, miraculous cures were hoped for after even a single transfusion. Like other priceless procedures the use of blood transfusion was often misused and instead of employing that procedure as an aid in the treatment of acute streptococcic septicemia, it was, and still is, used as a specific therapeutic agent. By the cases here reported I wish to show that blood transfusion alone, or in combination with other treatment, has not been of any great value in the treatment of such septicemias and the prognosis depends more upon the type of invading organism than to any treatment response to transfusion of blood.

It is well to consider first the etiology of acute streptococcic septicemia. There seems to be some difference in the exact classification but the classification of MacCallum,[12] as follows, is quite satisfactory:

Streptococcus hemolyticus is that organism

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which is often seen in puerperal sepsis, wound infections, etc. It grows in long chains and causes laking or hemolysis in blood agar plates.

Streptococcus viridans, often seen in sore throats, etc., is a short-chained form producing a green discoloration in blood agar plates, but no distinct hemolysis.

Streptococcus mucosus, causes streptococcus pneumonia, tonsillitis, etc. This organism is an encapsulated, round, lance-shaped coccus producing no hemolysis or green colonies in cultures. It forms glutinous colonies and is extremely virulent.

Hemolytic streptococci occur in various parts of the body, often without clinical manifestations as in diseased tonsils, joints, about the gums and teeth,[9] infections of the middle ear, mastoid and ethmoid disease.[20] They may be found on the surface and in the crypts of apparently normal tonsils as shown by Davis.[3] They have been recovered from surgically removed appendices.[20] From such foci of infection these streptococci enter other tissues because of a "lowered general or local resistance" but the exact manner in which tissue is damaged in an acute streptococcic septicemia is rather vague. The organisms from mucous surfaces penetrate into the tissues through the intercellular spaces where they produce a diffuse inflammatory change and from here enter the blood stream through the lymphatics resulting in a general bacteremia. There may then follow a generalized streptococcic septicemia; the walls of the blood vessels may be attacked producing infected thrombi, from which there are continually shed into the circulating blood fresh showers of streptococci.

Streptococci attack any and all tissues in the body, either directly destroying the tissues or in instances of more mild infections causing such damage as to make the invasions of other less virulent organisms a simple matter. Conversely, hemolytic streptococci may enter the general circulation as secondary invaders—for example, through the respiratory tract after, or during, upper respiratory infections. The exact intracellular changes that occur are not known. The exact physical or chemical action of the streptococcic toxins, like many other fundamental things is not clear. To describe its action as "protoplasmic poisons" is not satisfactory. There may be changes in the walls of the tissue cells, thereby producing electro-chemical changes recently suggested by Crile.[2] Until these facts are known the treatment of acute streptococcic septicemia will be difficult.

CASE REPORTS

The following case report is a classical example of the overwhelming toxemia in an instance of acute hemolytic streptococcic septicemia.

Patient: 31175, R. S., white, 37 years of age, single, a laundry foreman by occupation, was admitted to Henrotin Hospital on November 18, 1926.

Complaint: Fever and chills, "aching all over," restlessness, insomnia, swelling of the wrists and right ankle.

Onset and Course: Patient had an attack of "influenza" about two weeks before entering the hospital. This attack of "influenza" lasted for about five days, then the patient resumed work as a laundry foreman. He worked four days when and while at work experienced a most severe chill followed by a high fever. He entered the hospital in a semicomatose state.

Past History: Mumps and measles during childhood, influenza while with the army in France, 1918, "heart trouble" for a short period after influenza in 1918, frequent colds. Herniotomy three years ago.

Family History: Father and mother living and well, one brother and one sister living and well. No tuberculosis or malignancy in family.

Physical Examination: Revealed a well developed and well nourished male of about 37 years of age who appeared acutely ill and when first seen was suffering from a severe chill. Temperature, 105 F.; pulse, 110; respiration, 24. Frequent periods of delirium.

Head and Neck: Face flushed, mouth dry, breath offensive. Scalp negative, sclera clear, pupils equal, round, dilated, but reacted to light and accommodation. Opthalmoscopic examination negative. Nose and ears negative. Tongue was dry and coated. Pharynx markedly hyperemic.

Thorax: Symmetrical, expansion normal.

Lungs: Palpitation and percussion negative, auscultation revealed a few moist crackling rales posteriorly below each scapula.

Heart: Rate increased, sounds somewhat muffled, a slight systolic murmur heard at the apex, not transmitted to axilla.

Abdomen: Full but not distended, no rigidity, but there were areas of tenderness throughout entire abdomen.

Extremities normal.

Laboratory Examination. Blood: Erythrocytes, 4,500,000; leucocytes, 14,000; polymorphonuclear leucocytes, 78; lymphocytes, 17; basophiles, 17.

Blood type, 4 (Moss classification).

Urine: Albumin 1 plus, many granular casts; specific gravity, 1020.

Spinal Fluid: Fluid slightly tinged with blood, probably traumatic. On standing the cells settled to

the bottom of the tube and the fluid was clear. No pus found, only red cells seen with an occasional leucocyte. Culture on blood agar negative.

Blood Culture: (Iodine-alcohol Preparation). Two cultures taken in vacuum tubes and incubated for 24 hours. Examination revealed long-chained streptococci in both tubes. Plates were made and these colonies showed hemolytic zones; apparently they are streptococcus hemolyticus. Widal negative.

Provisional Diagnosis: Streptococcic septicemia of undetermined origin.

Operations: 11/23/26. Whole blood transfusion, 750 c.c. 11/24/26. Whole blood transfusion, 750 c.c.

Progress: The following day patient complained of pain in various joints and pain in abdomen but there was no definite point of tenderness. Temperature, 105 F; pulse, 102; respiration, 22. 750 c.c. of blood was transfused; no reaction; no clinical improvement; blood culture again revealed long-chained hemolytic streptococci.

Third Day: Temperature 105 F.; pulse, 102; respiration, 22. 30 grains of sodium salicylate and 20 gms. of glucose were given in 800 c.c. normal salt solution. His temperature immediately went down to 103; pulse, 108; respiration, 24. Sodium salicylate was given twice daily in doses of 15½ grains each; morphin was required to keep the patient quiet. His ankles and wrists became more painful and slightly swollen. Some rales heard posteriorly over both lungs. He complained of great pain over entire body, especially in his wrists and ankles.

Fourth Day: Respiration was profuse and he complained of pain. Septic temperature.

Sixth Day: Profuse perspiration; patient delirious.

Seventh Day: Delirium continued. Buttocks and shoulders bluish red.

Eighth Day: Lost control of sphincters, patient was very weak; spinal puncture negative. Petechiae over entire body, patchy hemorrhagic areas, dullness over lungs posteriorly.

Ninth Day: Patient about the same, except that the petechiae had increased in size. He died on the eleventh day. Post mortem examination not obtained.

Miller[13] reports an instance of a case of hemolytic streptococcic septicemia (short-chained streptococci), following streptococcic hemolyticus angina, treated by the administration of mercurochrome in the manner described by Hugh Young of Baltimore.[24] He administered 600 mg. of mercurochrome in solution and 20,000 units of diphtheria antitoxin. After a rather prolonged treatment this patient recovered.

Neff[14] reports the following four cases of septicemia where blood cultures revealed hemolytic streptococci. 1. Infant of three months with erysipelas. 2. Three-year-old child with hemolytic streptococcemia with multiple abscesses. 3. Six-month-old Mongolian with erysipelas. 4. Three-week-old infant with erysipelas. These were given numerous blood transfusions. He states that the first two children recovered and seemed to be markedly benefited. The last two children died from sepsis; the third child having received four transfusions and the fourth dying after one transfusion. Neff believes that unmodified blood is preferable to citrated blood and that the potency may be increased according to the method of Wright.[18] He does not mention whether the streptococci were of the long-chained variety but this is inferred because we assume that the hemolytic streptococci are of that type.

R. E. Stetsen[23] reports three cases of streptococcic septicemia. The two patients whose blood cultures revealed hemolytic streptococci died and the one where a streptococci viridian was found recovered.

Treatment. The prophylactic treatment should deal primarily in eradicating the possible source of the septicemia. Infected tonsils especially should be removed and other chronic lesions of the upper respiratory tract should be carefully observed. This, however, could not be carried out in the foregoing instances.

Usually, however, the patient comes to us with an overwhelming infection, typically a septicemia that requires immediate and intensive treatment.

Various chemicals as acriflavine, mercurochrome, etc., have been used both as direct specific antiseptics and to render the invading organisms less virulent and more susceptible to the action of the leucocytes. There seems sufficient evidence to lead one to believe that no chemical has yet been found that has a special or specific affinity for the hemolytic streptococcus in the blood stream. If chemicals are injected in the blood stream in sufficient concentration or in sufficient amount to kill the hemolytic streptococci, the chemicals would then undoubtedly destroy the leucocytes or, at least, render them less efficient.

Fleming[4] states that the bactericidal power of human blood may be altered but in one of the following methods:

1. By increasing the opsonic power of the blood fluids by the use of vaccines that may act

in a specific or non-specific manner. He believes also that this induces leucocytosis.

2. By methods of increasing the number and the efficiency of leucocytes using the uppermost layer of corpuscles in centrifuged blood or by the injection of nuclein. He also states that the leucocyte content of the donor's blood may be increased by injection of nuclein previous to transfusion.

3. By physical methods with a mercury lamp. Exposure to sunlight or a clamp causes an increase in the bactericidal power of the blood while an over-exposure diminishes that power.

4. By chemical methods: (a) Direct or specific antiseptics, such as mercurochrome or arsenical drugs. (Colebrook, quoted by Fleming, states that arsenical drugs seem to have remarkable affinity for streptococci pyogenes, but that the concentration necessary for a direct action upon the bacteria would undoubtedly injure the leucocytes.) (b) Drugs that render the invading organisms less virulent, as mercurial salts. Fleming believes that mercurial salts, as mercuric chloride, have a specific action on the hemolytic streptococci in that it renders them less virulent, less viable and more susceptible to the action on the leucocytes. There is considerable difficulty in determining whether or not mercurochrome has any specific action on hemolytic streptococci in vivo and there can be no better authority, perhaps, than Young, who states in a personal communication that he has no actual proof that mercurochrome given intravenously is directly germicidal in its effect on streptococcus hemolyticus. He now believes that usually this drug when put in the blood stream is not directly bactericidal, but rather that it accomplished its result by in some way stimulating the body defenses or less probably by the formation of some new compound in vivo. Colston and Hill showed several years ago that there is an actual increase in the bacteriostatic action of the blood after the intravenous administration of mercurochrome. Mercurochrome seems to be the only probable chemical of value in combating this overwhelming infection and does so perhaps not by direct antiseptic or lethal action, but as mentioned, causes them to become less virulent and more susceptible to the action of the leucocytes. Fleming[4] has shown where intravenous injection of hypertonic salt solution produced similar non-specific effects, thereby generally increasing the bactericidal property of the blood. Young[19] reports one series of thirteen cases of hemolytic streptococcic septicemia treated with injections of mercurochrome where five were cured and two improved, or a failure of only 30.7%; while in three cases of streptococcic viridians septicemia, similarly treated, one was improved, or a failure of 66.6%. This is exactly the opposite of our observations in instances where blood transfusion was resorted to alone or in combination with other treatment.

The use of anti-streptococcic serum is advisable in all cases, and, at present, seems the most logical auxiliary remedy. Dicks' work with anti-scarlet fever serum has been so successful that the production of a satisfactory bacteriolytic serum for all hemolytic streptococci is hoped for.

Whole, unmodified blood transfusion probably furnishes the best means of combating acute hemolytic streptococcic septicemia. Brines,[22] Unger and others have quite conclusively shown that the destruction of the invading organisms depends largely upon the phagocytic power of the leucocytes and the opsonic power of the plasma, properties of the blood that are altered when blood is transfused in a modified form.

Indications for Transfusion. It is sometimes difficult to determine when a transfusion should be done, because in the introduction of blood lies the potentialities of marked clinical betterment or harm, and the procedure is no less dangerous when misused than efficacious when properly employed. Transfusion should be performed hesitatingly in instances of insufficient renal function, cardiac dilatation, myocardial degeneration with low diastolic blood pressure, deranged liver function and pulmonary or cerebral edema.[25] In such instances the transfusion of compatible blood may precipitate sudden detrimental effects. Patients actually dying from sepsis are not improved by blood transfusion, due to the inability of greatly damaged excretory organs to properly care for the large amount of suddenly introduced foreign serum.

A given subject, in suffering from an acute hemolytic streptococcic septicemia may, if given compatible blood, experience an immediate reaction perhaps to a greater degree than an indi-

vidual suffering from a secondary anemia because the liver and kidneys of such individuals are, because of the sudden severe toxemia, mechanically or physiologically limited in their capacity to take care of the large volume of foreign protein suddenly introduced. Transfusion should then be given with caution, especially if there are evidences of edema, whether pulmonary, cerebral, renal, or peripheral. Early transfusions are therefore not only vastly more beneficial but far less dangerous.

Selection of Donors. Frequently, relatives or friends of the patient are found whose bloods are compatible. Usually, however, it is necessary to have on hand a list of suitable donors. Such a list will avoid unnecessary delay and suspense in performing a transfusion. Newspaper advertisements usually supply a sufficient number of individuals who may be called upon to act as donors on short notice. Records are made of the applicant's name, address, telephone number, age, weight, Wassermann reaction and type of blood. Wassermann and Kahn tests should be made as a routine, and may be considered an imperative preliminary procedure in the examination of applicants. We have found that about 12% of all applicants answering advertisements have positive Wassermann reactions. Donors should, of course, not be used who give histories of recent infectious disease. Prospective donors weighing under 130 pounds should be discouraged. Age is not an important factor, though donors between 25 and 45 are preferable. In no circumstances do I employ minors to donate without the written consent of their parents or guardians, and then only in rare instances when no other donor is readily obtainable. Temperamental or hysterical people, especially if relatives of the patient, should not be used. Their anxiety is often followed by a syncope that usually interferes with or terminates an otherwise successful transfusion. Professional donors who are the least unwilling are an abomination. There is a marked tendency for them to compare the technique of different operators. They are continually fault finding, removing dressings from their arms and infecting their wounds by removing their own stitches, etc.

The dangers of a transfusion to a donor are practically negligible. By the use of indirect methods now employed, a donor should not become infected from a septic patient. Occasionally one faints, but usually from the psychic effect of the character of the operation, rather than the anemia produced. Should there be any tendency toward syncope, the head of the table is lowered until the donor recovers. In such cases the flow of blood is slow, due to the dilatation of splanchnic vessels that leaves less blood in the peripheral vessels. It does not seem wise to remove more than 800 c.c. of blood from a donor at one time, and if more blood is needed, a second donor should be employed. After the transfusion the donor is instructed to lie quietly for one hour, during which time fluids are given freely to restore blood volume.

Apparatus. I shall not discuss here the numerous instruments for blood transfusion. I believe, however, that whole blood should be employed. Any method where, by the use of a simple instrument, a known amount of whole blood can be rapidly transfused, without subjecting the donor to infection or destroying his arteries and without altering the blood chemically, biologically or physically, is the method of choice. With the exception of a few cases where infants were transfused I have very advantageously used Percy's modification of Kimpton Brown paraffined glass tube. By the use of this tube, as much as 600 c.c. of blood can be transfused in less than six minutes. During this time the blood does not cool and is transfused in its normal state without the addition of anticoagulants or loss of any of its constituents by defibrination.

Post-Transfusion Reactions. Post-transfusion reactions may briefly be grouped as follows: 1. Reactions due to introduction of incompatible blood. These can be prevented by proper preliminary typing and cross-matching of the donor's and recipient's bloods. Though the Moss classification places all individuals into four groups, it has been shown by the extensive work of Guthrie and Huck[6] of Baltimore that subgroups exist. Hence the necessity of selecting donors, not only with respect to their positions in the Moss classification, but also on the basis of the relation of their agglutinin-agglutinogen content to prospective recipients. Cross-grouping will readily eliminate this type of post-transfusion reaction.

2. Disturbance of the colloidal balance of the recipient's serum caused by the donor's serum, often is manifest by a slight reaction. In such cases there is an early and transient appearance of serum albumin in the recipient's urine. The immediate disturbance following changes in the colloid balance seems to be in the general capillary engorgement and stasis, usually relieved by a vaso-constricting agent such as epinephrin or ephredrin, helpful agents that should always be at hand.

3. Lysis of bacteria of damaged tissue, a delayed recipient response, usually occurs from one to four hours after the introduction of the donor's blood. It is not a hemolytic crisis, as the erythrocytes and platelets are definitely increased in number and no blood pigments are ordinarily found in the urine. Yet, in instances of acute hemolytic streptococcic septicemia, blood pigments are found in the urine and this factor is not of importance in determining the cause of such reactions. Clinically, there are exhausting chills with subsequent fever. It seems that the reaction is due to a bacterial cleavage or cleavage of damaged tissue proteins by the donor's blood increasing the bacteriolytic or proteolytic power of the recipient's serum.

4. Protepexic liver function of the donor may be of such a character that would permit partially or imperfectly split proteins coming from his digestive tract to go through the liver and, borne with comparative impunity by the donor, may be highly toxic to the recipient when introduced into his general circulation. This is especially noticeable when some donors are used immediately after their having had a heavy meal. The reaction resembles a non-specific shock as a Widal crisis—in that there is a slight and transient reduction of the number of leucocytes and prolongation of the coagulation time.

5. Protein shock certainly seems to be an important factor in the production of post-transfusion reaction. Protein shock differs from anaphylaxis in that it is a condition of increased susceptibility, due to a non-specific protein, and that no previous sensitization is required. Passive anaphylaxis can be prevented by thorough questioning and complete examination of the prospective donor.

RESULTS

The use of whole blood transfusion alone in the treatment of acute streptococcic septicemia is not always gratifying. When performed early, at the very onset of the course of infection, repeated transfusions of whole blood are more helpful. The use of antiseptics, as mercurochrome, given intravenously, will either have some direct action upon the streptococci or render them less virulent and more liable to the attack of the leucocytes of the patient's and donor's bloods. In instances where the blood cultures reveal long-chained hemolytic streptococci the prognosis is particularly grave and transfusions are futile as shown by the accompanying table. Where short-chained organisms (streptococcus viridans) are found the prognosis, as in this series at least, is slightly more hopeful. (Table I).

Of twelve patients of streptococcic septicemia, similarly treated by whole blood transfusion for definitely proven streptococcic septicemia, ten died and two recovered. Of the ten fatal cases long-chained hemolytic streptococci were recovered in six instances, short-chained streptococcus viridans were found in three instances, and, in one instance (believed to be a hemolytic streptococci septicemia) the blood culture was lost.

No patient recovered in whose blood was found long-chained hemolytic streptococci. Two patients out of five whose blood cultures revealed a short-chained streptococcus viridans recovered.

There is a debatable question as to the value and safety of ex-sanguination transfusion. In hemolytic streptococcic septicemia the invading organisms are not only in the blood but attached to infected thrombi, on ulcerated heart valves, in the lymphatics, in intracellular spaces, in petiecheal hemorrhagic areas, etc., so that, if it were possible to remove not only a portion but all of the patient's blood and transfuse new blood from several compatible donors, the numerous showers of streptococci would again enter the patient's blood stream as before.

The transfusion of whole blood after the intravenous administration of mercurochrome or other bacteriostatic or bacteriotoxic substances will be more efficacious in that the large number of healthy leucocytes, suddenly introduced into the recipient's blood stream, are more liable to

successfully attack the streptococci previously made less virulent by the bacteriostatic substances.

SUMMARY

The cases of hemolytic streptococcic septicemia, in the series here reported, did not respond favorably to whole blood transfusion when such transfusions were used alone or in conjunction with other treatment directed to aid the body defenses or to directly destroy the streptococci in vivo. The mortality rate in instances where long-chained hemolytic streptococci were revealed by blood culture was 100%, while the mortality rate where short-chained streptococci were found in the blood was 60%.

Transfusion of whole unmodified blood nevertheless should be performed very early in the course of the disease in conjunction with other measures directed to the rendering the invading organisms less virulent and more susceptible to the phagocytic action of the freshly introduced leucocytes and the opsonic power of the plasma of the donor's blood.

55 E. Washington St.

REFERENCES TO LITERATURE

1. Brown, D. D.: Immuno-Transfusion in Bacterial Endocarditis. Med. Jour. of Australia, Vol. 1, p. 578. April, 1927.

2. Crile: Lecture before North Side Branch of Chicago Medical Society, 1929.

3. Davis, D. J.: Bacteriology and Pathology of the Tonsils, with especial Reference to Chronic Articular, Renal and Cardiac Lesions. Jour. of Inf. Dis., 1912, X, p. 118.

4. Fleming, Alexander: The Bactericidal Power of Human Blood and Some Methods of Altering It. Proc. of Royal Soc. of Med., Vol. 21, p. 859. March, 1928.

5. Friedman, G. C., and Whitehouse, A. J.: Dangerous Universal Donor. Amer. Jour of Med. Sci., Vol. 172, p. 664. November, 1926.

6. Guthrie, C. G. and Huck, J. G.: Bull. of Johns Hopkins Hosp., 34. February (80), March (37), 1923.

7. Howell, K., Portis, B., and Beverley, D.: Antibody Response After Immuno-Transfusion in Malignant Endocarditis. Jour. of Inf. Dis., Vol. 39, p. 1. 1926.

8. Jones, H. W.: Blood Transfusion in Peurpura Hemorrhagica and Acute Haemolytic Jaundice. Ann. of Clin. Med., Vol. 5, p. 367. October, 1926.

9. Kordenat, Ralph A.: The Occurrence of Haemolytic Streptococci About the Teeth. The Jour. of Dental Res., Vol. iii, No. 1. March, 1921.

10. Lloyd, E. J., and Schlesinger, B. E.: Four Cases of Immuno-Transfusion. (Charts.) Archives of Diseases in Childhood, Vol. 1, p. 54. February, 1926.

11. Maximowitsch, A. S.: The Question of Blood Transfusion in Acholia. Bruns' Beitr. zur klin. Chir., Vol. 141, p. 186. 1927.

12. MacCallum, W. G.: Textbook of Pathology. W. B. Saunders Company, 1918.

13. Miller, J. E.: Streptococcus Septicaemia, Clinical Notes. U. S. Nav. Med. Bull., 22:37-40 January, 1925.

14. Neff, Frank C.: Effect of Blood Transfusion in Certain Streptococcic Infections. South. Med. Jour., Vol. xx, No. 7, p. 519. November, 1926.

15. Rockwell, O. E.: Treatment of Streptococcic Septicaemia. Med. Jour., Vol. 8, p. 588. February, 1928.

16. Schaffer, A. J., and Rothman, S. E.: Treatment of Erysipelas with Blood Transfusion. Amer. Jour. of Dis. of Children, Vol. 33, p. 116. 1927.

17. Weston, W., Jr.: Effect of Blood Transfusion in Pneumococcus Type III, Pneumonia and Septicaemia. Arch. of Ped., Vol. 44, p. 378. June, 1927.

18. Wright, Sir Almroth: Lancet, 1:489. 1919.

19. Young, Hugh H.: Personal Communication. 1929.

20. Voight, W. C. R.: The Bacteriology of Focal Infection. Jour. of Ophth., Otol. and Laryn., 23, p. 87. 1917.

21. Kraft, A.: Haemolytic Streptococci of Appendix Vermiformis. Jour. of Inf. Dis., 28, p. 122. 1921.

22. Brines, Osborne, A.: The Transfusing of Unmodified Blood. Arch. of Surg., 12:1, Part 1, 124-139. January, 1926.

23. Stetson, R. E.: Three Phases of Blood Transfusion. Read before the Hudson County Medical Society, December, 1921.

24. Young, Hugh: J. A. M. A., August, 1924.

25. Kordenat, Ralph A., and Smithies, Frank: The Phenomena Concerned with "Reactions" Following the Transfusion of Blood. Jour. A. M. A., October 17, 1925, Vol. 85, p. 1193-1199.

TABLE 1. SUMMARY OF TWELVE CASES OF SEPTICAEMIA TREATED BY BLOOD TRANSFUSION

Case No.	Transfusion No.	Diagnosis	Blood Culture	Tranfusion	Result
1.	R. S. 156	Streptococcic Septicemia of unknown origin	Long-chain hemolytic streptococci	750 c.c. (2)	Died
2.	T. 34	Malignant endocarditis	Long-chain hemolytic streptococci	750 c.c.	Died
3.	E. 60	Malignant endocarditis and secondary anemia	Long-chain hemolytic streptococci	200 c.c.	Died
4.	B. 72	Post-operative septicemia	Long-chain hemolytic streptococci	750 c.c.	Died
5.	Dr. D. 73	Purpura Hemorrhagica	Streptococci viridans	200 c.c.	Died
6.	S. 85	Malignant endocarditis and secondary anemia	Streptococci viridans	500 c.c.	Died
7.	B. 97	Endocarditis and secondary anemia	Blood culture lost	800 c.c.	Died
8.	K.122	Septicemia following abortion	Hemolytic streptococci	750 c.c.	Died
9.	A. 133	Endocarditis and secondary anemia	Short-chain streptococci viridans	750 c.c. (2)	Recovered
10.	K. 137	Septicemia, endocarditis and secondary anemia	Short-chain streptococci viridans	700 c.c.	Recovered
11.	K. 37	Diffuse Pelvic Peritonitis following suppurative salpingitis	Short-chain streptococci viridans	700 c.c.	Died
12.	Dr. V. P. 180	Pelvic abscess (Retro-peritoneal) of undetermined origin	Hemolytic streptococci	750 c.c.	Died

	Number	Recovered	Died
Hemolytic Streptococci	6	0	6
Streptococci Viridans	5	2	3
Questionable	1	0	1

A BRIEF REPORT OF THE ANNUAL CONVENTION OF THE WOMAN'S AUXILIARY OF THE AMERICAN MEDICAL ASSOCIATION

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SPRINGFIELD, ILL.

As an adjective the word auxiliary means, helping, aiding, assisting, and as a noun it is a helper, an assistant, a confederate.

With this definition which I have just quoted, and with the admonition that we should never for one moment forget that we are an auxiliary to the Medical profession, our National President, Mrs. Allen H. Bunce of Atlanta, Georgia, gave her report to the 7th Annual session of the Woman's Auxiliary in Portland, Oregon, July 9, 1929.

Of the 192 Auxiliary Members registered at this meeting, Mrs. Mundt, Mrs. Freeman and I were privileged to represent the Auxiliary of Illinois.

The usual instructive and interesting reports of the following committees were discussed and adopted, Health Education, Hygeia, Public Relations, Finance, Health Films, and last but far from least, the report of the committee on Revision of the By-Laws.

As many of you know, your own Mrs. Morris Fishbein, member of the National Board, and her committee, are responsible for the splendid By-Laws the National organization is now governed by, and Chicago should be justly proud of the able, tedious and very efficient work that Mrs. Fishbein has done in preparing the By-Laws which are essential for the proper management of the National organization, simple in construction, yet comprehensive enough to be correctly interpreted by every member of the Auxiliary.

However, in adopting the By-Laws considerable discussion arose over the question of the Auxiliary combining its organization with, and becoming an integral part of the Federated Woman's Clubs, Parent Teachers' organization, etc.

Several states in the south, notably Texas, had resorted to such combinations and reported their satisfaction with the scheme. Other delegates thought that this was a dangerous precedent and that the Auxiliary would soon find that it would lose its identity, and would become subservient to other organizations which would have a numerically larger membership.

Article VI, section I of our By-Laws reads "The Woman's Auxiliary to the American Medical Association should not affiliate with other organizations, nor provide for representation on its Board of Directors, of representatives of other organizations, nor be itself officially represented on the board of other organizations."

Thereupon Mrs. Bunce appointed a special committee to confer with the advisory committee of the American Medical Association, for its opinion before definite action was taken, regarding the matter.

Later in the day the special committee reported, that in its opinion the articles of the By-Laws under discussion should be adopted as written, but in view of the desire not to interfere with State's rights, Texas was permitted to continue, but the committee asked that other states give careful consideration to this important matter before adopting a similar procedure, thereby probably avoiding some entangling alliances. This ruling permitted Texas to continue to function under its state By-Laws, as it had previously done, and the threatened recession of the south was averted.

We were honored by a visit and brief address from Dr. Upham, chairman of the advisory council from the American Medical Association to the National Auxiliary. He offered his felicitations to the ladies and gave a brief talk on the place of doctors' wives in the field of medicine.

Our very good friend, Dr. E. H. Carey of Texas, in his jovial way admonished us not to forget that every member of the Auxiliary should be deeply grateful to him for presenting the request before the House of Delegates in 1922 making the organization of the Auxiliary possible.

Dr. William S. Thayer of Baltimore, the retiring President of the American Medical Association, brought sincere greetings for the welfare of the Auxiliary and suggested a continuation of the principles that had already been outlined by our organization.

We were honored by a brief talk by Illinois' own, Dr. M. L. Harris, the incoming President of the American Medical Association. He emphasized that education is the one thing that peo-

ple need more than anything else. Education along the lines of health, how to maintain it and how to recover it when lost. He pointed out some of the advantages in properly educating the young. He appealed to the women to conduct such programs of education as would help eliminate the greatest obstacles in Health Programs, namely prejudice, superstition and mysticism, all of which are mere products of ignorance. By educating the general public, the Auxiliary would render the greatest service to the Medical Profession in its efforts to improve the good health of the people.

The Chairman on Resolutions presented the question of erecting a "Jane Todd Crawford" memorial. Now, as many of you already know, Jane Todd Crawford was the Pioneer Heroine of surgery, and to her, womanhood today owes an inestimable debt of gratitude. In a small, poorly heated room, lying on a long wooden table covered only with a folded blanket, fully dressed, and without the aid of an anesthetic, Jane Crawford in cooperation with Dr. Ephram McDowell, father of Ovariotomy, prepared the way for abdominal surgery, which has in these modern times become a relatively simple, safe and not unusual procedure. The women of Kentucky are presenting the request to the various state organizations that a memorial suitable to this brave pioneer woman be erected. This is one of the things to come up in the May meeting so it would be well to look into it more fully that your delegates be better instructed, if you are interested.

Mrs. G. Henry Mundt, who is chairman of the finance committee of the National Auxiliary and past President of the Illinois Auxiliary, gave, in her very able manner, a most excellent paper on the Economic side of Medicine.

We have in Vienna, Austria, an Auxiliary from which Mrs. Frank Cregor of Indianapolis, first vice-president of the National Auxiliary, read a most interesting report. It is mostly social because of the constantly changing membership, and American Doctors' wives are eligible whether there for a couple of weeks or several years. It would be quite fitting for the wives of Physicians who are visiting or studying abroad to inquire as to whether there is an Auxiliary in the particular Medical center in which their husbands are studying, and of course it would be a mark of respect to visit such an organization if at all possible. There is a large American Hospital in Paris and if an Auxiliary were formed there it would be invaluable to doctors' wives, in helping them to see and do the things in and around Paris.

Now my entire idea in attending the Portland meeting and in meeting many women over the states in the past year, was to gather background, to assist me in planning and carrying on the work of this very valuable organization. Valuable, providing we first educate ourselves so that we are capable of intelligently acting as a medium between the medical profession and our many and various types of clubs. Here lies the problem for each branch and County Auxiliary, namely the selection of the phase of Education that embodies its most urgent needs. Obviously they are very different and the National Body and state auxiliary can advise and cooperate but they can not direct. Some of us have assisted in the early organization work of the Women's Club, while many more remember the mistakes and disappointments incurred in the early years of the Parent Teacher Associations.

It was because of cooperation and tolerance that these two splendid organizations are today doing many outstanding things, so I am very sure that if we, as an Auxiliary, will be patient, willing to listen and learn and not too eager to do big things before we are ready, we will in a few years be an indispensable asset to the profession which we all hold so near and dear.

CORRECTION OF COMPRESSED FRACTURES OF VERTEBRAE

John Dunlop and Carl H. Parker, Pasadena, Calif. (*Journal A. M. A.*, Jan. 11, 1930), assert that compressed impacted fractures of the vertebral bodies can be reduced with restoration of the normal form of the vertebral body; also that these healed bodies maintain their shape when the patient goes about his normal activities. The reduction of these fractures is accomplished by forcible hyperextension of the back, while strong traction and counter traction are applied to the body. The traction is obtained by two men pulling upward on sheets which are passed diagonally across the chest and under the arm of the opposite side; the counter traction is furnished by two men pulling downward on the ankles. The frequency of compression fractures in industrial accidents makes this injury of great importance to industrial surgeons. In the past the injured man has received compensation over a long period, and in addition has been given a permanent

disability rating. The success of the manipulation in the uncomplicated cases of compression fracture depends on intact articular facets, the strong anterior longitudinal ligament, and the firm attachment of the invertebral disks to the bodies of the vertebrae. In the authors' series, the best reductions have been accomplished when the injury was below the ninth dorsal vertebra. Only partial reductions have been obtained in the middorsal region.

Society Proceedings

ADAMS COUNTY

The annual social meeting of the society was held at the Quincy Country Club January 14 and was preceded by a dinner beginning at 6:45 P. M.

After dinner the President, Doctor J. F. Ross, introduced the speaker of the evening, Attorney Frank Dick, who gave an interesting paper on "Medical Jurisprudence."

Following Mr. Dick's address, quite a number of the members asked him questions concerning legal problems in the practice of medicine. This part of the meeting was followed by a two-reel motion picture, entitled, "How Biological Products Are Made." This was put on by the courtesy of Parke-Davis and Company of Detroit.

Following this quite a few of the members remained to participate in cards.

HAROLD SWANBERG, M. D.,
Secretary.

ALEXANDER COUNTY

The Alexander County Medical Society held a very interesting and profitable meeting at the Halliday hotel, Cairo, January 24.

The case of cleidocranial dysostosis, presented by Dr. Hutcheson, proved very interesting, because of the rarity of the disease, there being only a few such cases on record. Dr. Miller also presented an instructive case on meningitis in a child with a chronic discharging ear. Following a discussion of the cases, Dr. Hutcheson presented a splendid paper on "Uterine Hemorrhage" for the edification of the members and visitors.

The president, Dr. Phil McNemer, appointed the following members to the committee on public health and legislation: Dr. Dickerson, chairman; Dr. Johnson and Dr. Davis. This is the only standing committee of the society. Steps were taken looking towards the organization of the local and the Pulaski county societies into a joint society to be known as the Alexander-Pulaski County Medical Society, the organization to be perfected for the year 1931.

Dr. Bondurant will present a paper at the February meeting on "Injuries." In this he will cover fractures of the skull. The doctor's well known ability and the timeliness of the subject in these days of hard streets and roads and careless drivers is expected to assure a worthwhile meeting. J. W. DUNN, M. D.
Secretary.

COOK COUNTY

Chicago Medical Society Joint Meeting with Chicago Society of Industrial Medicine and Surgery

January 8

Program

Fractures of the Acetabulum, W. R. Cubbins.
Discussion: E. W. Ryerson and A. H. Conley.
Analysis of Anxiety States, Dr. Fritz Wittels-Vienna.
Discussion: R. C. Hammill and G. W. Hall.

Regular Meeting, January 15

Fundamental Americanism, Prof. George W. Dyer, Department of Economics, Vanderbilt University, Nashville, Tenn.

Regular Meeting, January 22

The Clinical Relations of Achlorhydria, Dr. James S. McLester, Birmingham, Ala.

Discussion: L. D. Snorf, A. A. Goldsmith, Donald Abbott.

Joint Meeting with Chicago Tuberculosis Society, January 29

Resistance in Tuberculosis, William F. Petersen.

Some Important Phases in the Differential Diagnosis, Pathology and Treatment of Surgical Tuberculosis, Philip H. Kreuscher.

Discussion: Fremont A. Chandler.

Treatment of Tuberculosis by Heliotherapy with moving pictures, A. M. Forster, Colorado Springs, Colo.

Marriages

J. HAROLD HOPKINS, Walnut, Ill., to Miss Myrtle Marks of Dow City, Iowa, in Omaha, Dec. 27, 1929.

CLARENCE LEON WILSON to Miss Ernestine Grace Fleming, both of Chicago, Dec. 31, 1929.

Personals

Dr. A. C. Baxter of Springfield was appointed assistant director of the department of public health by Gov. Emmerson, January 30, to succeed Dr. Thomas H. Leonard, who resigned recently to enter the health service of California.

Dr. Harry W. Waterous of Galva is retiring from practice after 37 years' practice and will sail for Manila this month, where he will be associated with his son, Dr. Willard Waterous. Dr. Ben W. Kinsey of Victoria will continue the Galva practice.

The home of Dr. and Mrs. Christian H. Diehl, Effingham, is reported to have been destroyed by fire, Dec. 19, 1929. Dr. Diehl is secretary of Effingham County Medical Society.

Dr. Isadore Pilot addressed the Rock Island County Medical Society, January 14, on "Bronchial Asthma-Allergy and Its Relations to Asthma."

The Vermilion County Medical Society was addressed at Danville, January 7, by Dr. Henry Schmitz, Chicago, on "Diagnosis and Treatment of Cancer."

Dr. George Hoffman, after about twelve years' service as physician at the prison at Chester, has resigned, effective January 1, to devote his time to private practice.

Dr. Andy Hall, state health officer, Springfield, addressed the Jefferson-Hamilton County Medical Society, Mount Vernon, January 17, on some health problems in Illinois.

Dr. Joseph K. Calvin, Chicago, gave an illustrated lecture on "Nephritis in Children" before the Livingston County Medical Society, Pontiac, Dec. 19, 1929.

Dr. Carl E. Black, Jacksonville, was elected president of the Western Surgical Association for the ensuing year at the recent meeting in Del Monte, Calif.

Dr. Benjamin Goldberg, Medical Director of the City of Chicago Municipal Tuberculosis Sanitarium and Asst. Professor University of Illinois College of Medicine, will give the annual address at the meeting of the Boston Tuberculosis Association on the afternoon of Monday, February 3, 1930. His subject will be "Present Needs in Tuberculosis Control." In the evening Dr. Goldberg will address the Trudeau Society of Boston on "The Medical Aspects of Phrenic Surgery."

On January 9, 1930, Dr. Geza de Takats presented a paper before the Evanston Branch of the Chicago Medical Society, "The Surgery of Diabetic Patients."

On January 3, 1930, Dr. R. W. McNealy and Dr. M. E. Lichenstein addressed the Chicago Surgical Society on "Muscular Relaxation Produced by Novocain in Tendon Repair."

On January 7, 1930, Dr. W. A. Newman Dorland presented the Canti Cancer Film to the Peoria County Medical Society, prefacing his remarks with interesting statistics regarding cancer and its prevalence in the United States. The attendance numbered 220 and the meeting was held in the auditorium of the Peoria Women's Club.

On Jan. 21 Dr. Walter M. Boothby, Director of the Metabolism Laboratory at the Mayo Clinic addressed the Peoria County Medical Society on "Oxygen Therapy." He gave the main points in the administration of oxygen in post operative pneumonias. His talk was illustrated with lantern slides. Approximately 100 members were in attendance.

Dr. Jean V. Cooke, department of pediatrics, Washington University School of Medicine, St. Louis, addressed the McLean County Medical Society, Bloomington, January 14, on "Specific Prophylaxis and Treatment of Infectious Diseases."

The Christian County Medical Society and physicians of central Illinois were addressed January 15, at Taylorville, by Dr. Quitman U. Newell, St. Louis, on treatment of cancer of the uterus.

News Notes

—The Chicago Council of Medical Women was addressed at the Medical and Dental Arts Club, February 7, by Drs. Helen V. McLean and Barbara M. Nickey on "Obstetrics in China" and "Public Health Work in India," respectively.

At the meeting on March 7, Dr. Lucille R. Grant will discuss "Pollen Disease" (Hay Fever) and Dr. Ruth Tunnicliffe will present the subject, "Measles."

—The sixth Ludvig Hektoen Lecture of the Billings Foundation was delivered before the Institute of Medicine of Chicago, January 24, by Dr. Albert V. Hardy, director, state hygienic laboratories, State University of Iowa College of Medicine, Iowa City, on "Undulant Fever."

—The Chicago Neurological Society was addressed, January 16, by Dr. Lewis J. Pollock on "An Abnormal Abdominal Reflex Producing Crossed Flexion of the Upper Extremity;" Dr. Ernest Sachs, St. Louis, "Review of Forty-five Frontal Lobe Lesions" and Dr. Fritz Wittels, Vienna, Austria, "Psychoanalysis in Relation to Psychiatry."

—Although official figures are not yet complete, the birth rate for Chicago declined 1.6 per cent in 1929 as against that for 1928. The

birth rate per thousand of population was 18.7 in 1928; the nearly complete figures show that it will be 18.4 for 1929. The reasons advanced to account for the declining birth rate were restricted immigration, spread of birth control information and changes in the standard of living.

—The Chicago Dental Society held its annual congress at the Stevens Hotel, January 13-15. A symposium on avitaminoses was presented by Dr. Simeon B. Wolbach, Shattuck professor of pathology and anatomy, Harvard University Medical School; Dr. Edward H. Hatton, professor of pathology, Northwestern University Dental College, and Milton T. Hanke, PhD., professor of pathology, University of Chicago.

—At the annual meeting of the Elmhurst Hospital staff at Elmhurst, Ill., the following officers were elected: President of staff, J. H. Raach, Wheaton; vice-president, H. F. Langhorst, Elmhurst; secretary-treasurer, J. W. Reiss, Lombard. The president appointed executive committee: E. H. Oelke, Wheaton, chairman; H. F. Langhorst, Elmhurst, and Allis S. Watson, Glen Ellyn.

—Judge Hopkins of the criminal court refused a new trial, January 5, to W. H. H. Miller, former head of the state department of education and registration. In the same court, Dec. 10, 1929, Miller was found guilty of conspiracy to sell medical and dental licenses to persons not licensed to practice and was sentenced to seven months and one day in the county jail and fined $2,000. Miller's attorney was given a limited period in which to file an appeal.

—Of the specimens examined by the laboratory of the state department of health in 1929, 88,939, or 68 per cent., were submitted for tests relating to syphilis and gonorrhea, and nearly 21 per cent. were found to be positive. In the search for tubercle bacilli, more than 14,000 tests were made and nearly 16 per cent. proved positive; 8,663 tests were made for the discovery of typhoid bacilli; only 968 cases of typhoid, however, occurred in the state. The tests are done by the state free of charge.

—Dr. Herman M. Adler, state criminologist and director of the Juvenile Psychopathic Institute, has accepted a professorship of psychiatry at the University of California, Berkeley, and an appointment as consultant to the California State Department of Institutions. Dr. Adler, who was assistant professor of psychiatry at Harvard University Medical School, came to Chicago in 1916 to study the facilities in Cook County for the detection and care of mental diseases, under the auspices of the Rockefeller Foundation and National Committee for Mental Hygiene. Dr. Adler's assistant for several years, Dr. Paul L. Schroeder, has been designated by the governor to succeed him.

—At the annual meeting of the Chicago Heart Association, January 14, heart disease as a cause of death in Chicago was said to have increased more than 21 per cent in the last ten years. During 1929 there were 7,300 deaths due to heart disease and 7,208 cases treated at seventeen dispensaries in Chicago; the total of cases included 2,284 children. Among the speakers at the meeting were Dr. Irving S. Cutter, dean of the Northwestern University Medical School, and Dr. Morris Fishbein was elected one of the governors of the association. Dr. Walter W. Hamburger presided. It was announced that ground will be broken for the La Rabida Sanatorium in Jackson Park, June 1. This will be a 175-bed hospital for convalescent children.

Deaths

MARTHA ANDERSON, Quincy, Ill.; Northwestern University Woman's Medical School, Chicago, 1898; a Fellow A. M. A.; formerly medical director of the Adams County Tuberculosis Sanatorium, Quincy; aged 58; died in December, 1929, at Roberts, of subphrenic abscess following resection of the pylorus.

JAMES W. ARMSTRONG, Centralia, Ill.; Medical College of Indiana, Indianapolis, 1885; formerly president of Southern Illinois Medical Society and city health officer of Centralia; aged 73; died, December 19, of cerebral hemorrhage.

JAMES MONROE BAKER, Decatur, Ill.; Eclectic Medical College, Cincinnati, 1892; aged 64; died suddenly, December 21, 1929, of chronic myocarditis.

HERMAN THEODORE BECHTOLD, O'Fallon, Ill.; Missouri Medical College, St. Louis, 1880; aged 75; died, Dec. 17, 1929, of heart disease.

WILLIAM BLANCHARD, Chicago; National Medical University, Chicago, 1905; aged 60; died in Cook County Hospital, January 11, of chronic morphinism and septicemia.

WALTER TEED BRONSON, Chicago; Northwestern University Medical School, Chicago, 1910; a Fellow A. M.

A.; secretary of the Radiological Society of North America; director of the roentgen-ray laboratories at his alma mater; served during the World War; roentgenologist to the Englewood Hospital; aged 42; died, Dec. 26, 1929, at the Edward Hines, Jr., Hospital, Maywood.

AUBREY J. ENLOW, Liberty, Ill.; Missouri Medical College, 1899; aged 51; died, December 20, 1929, of an overdose of aconite taken with probable suicidal intent.

EDGAR ELLIS FYKE, Centralia, Ill.; St. Louis College of Physicians and Surgeons, 1889; a successful coal mine operator for past 20 years; in U. S. Medical Corps during the World War; a bank director; resident of high school board; active in politics and Masonry; aged 61; died, December 31, 1929, in a hospital at San Antonio, Tex., form meningitis following mastoiditis.

EDWIN J. GARDINER, Evanston, Ill.; University of Madrid, 1878; a member of Evanston branch, Chicago Medical Society; aged 73; died January 9, of arteriosclerosis.

ROLLEN WILBUR HARROD, Avon, Ill.; Northwestern University Medical School, 1904; University and Bellevue Hospital Medical College, 1904; a veteran of U. S. Army Medical Corps in the World War; former mayor of Avon; active in the Masonic order; aged 53; died, December 30, 1929, of rheumatic endocarditis.

ROLAND HAZEN, Paris, Ill.; University of Pennsylvania School of Medicine, 1901; a member of Illinois State Medical Society; founder of the Paris hospital; aged 53; died, January 14, of a self-inflicted bullet wound.

HERMAN S. HERZFELD, Chicago; University of Varonezh, Russia, 1896; aged 58; died, Nov. 8, 1929, at Mount Sinai Hospital, of heart disease and chronic nephritis.

JOHN MCCLELLAN KLINCK, Chicago; Barnes Medical College, St. Louis, 1905; a Fellow A. M. A.; aged 58; died, Oct. 27, 1929, in Los Angeles.

ROYDEN ARTHUR LAING, Ellsworth, Ill.; Chicago College of Medicine and Surgery, 1917; a member of Illinois State Medical Society; aged 40; died, January 3, in St. Joseph hospital, from injuries received when his automobile ran into a culvert.

MARIA LEVIN LIPKIN, Chicago; Charkovsky Universitet, Kharkov, Russia, 1916; aged 35; died, Dec. 5, 1929, at the Illinois Research and Educational Hospital, of acute yellow atrophy of the liver.

ROBERT CLINTON MILLER, Freeport, Ill.; College of Physicians and Surgeons, Chicago, 1887; a Fellow A. M. A.; aged 62; died, Dec. 6, 1929, of diabetes mellitus.

DR. JOHN M. MURRAY, Joliet, Ill.; University of Glasgow, 1976; aged 81; died, December 19, 1929, in St. Joseph hospital.

PAUL REXFORD NEAL, Chicago; Rush Medical College, Chicago, 1917; a Fellow A. M. A.; member of the Kansas Medical Society; aged 37; died, Nov. 12, 1929, at the Augustana hospital, of heart disease.

JOHN W. O'HAVER, Danville, Ill.; Cincinnati College of Medicine and Surgery, 1882; member of the Illinois State Medical Society; aged 80; died, Dec. 27, 1929, at the Lakeview hospital, of pneumonia.

JOSEPH SHELTON POINDEXTER, Jacksonville, Ill.; College of Physicians and Surgeons, Keokuk, 1880; aged 82; died, Nov. 25, 1929, at Girard, of pericarditis and arteriosclerosis.

CHARLES G. RAYHILL, Belleville, Ill.; St. Louis Medical College, 1882; member of the Illinois State Medical Society; aged 71; died, Dec. 30, 1929, of myocarditis.

JAMES H. SQUIRE, Carrollton, Ill.; Homeopathic Medical College of Missouri, 1889; one of the oldest members of Illinois State Medical Society, aged 86; died, December 18, at his home.

EDWIN F. STANNUS, Quincy, Ill.; Keokuk Medical College, College of Physicians and Surgeons, 1905; after several years' practice in New York City he had returned recently to Quincy and installed elaborate equipment for practice; aged 48; died suddenly, January 1, of acute dilatation of the heart.

GEORGE L. THOMPSON, Mount Sterling, Ill.; Keokuk (Iowa) Medical College, 1896; member of the Illinois State Medical Society; aged 80; died in November, 1929, of acute dilatation of the heart.

WARD C. TUNISON, White Hall, Ill.; Cincinnati College of Medicine and Surgery, 1895; member of the Illinois State Medical Society; aged 60; died, Dec. 20, 1929, at St. John's Hospital, Springfield, of myocarditis and cholecystitis.

JOHN W. VAN WINKLE, Chicago; Medical Department of the University of the City of New York, 1878; a Fellow A. M. A.; aged 79; died, January 1, of bronchopneumonia.

WILLIAM SEYMOUR WHITE, Evanston, Ill.; Chicago Homeopathic Medical College, 1888; a Fellow A. M. A.; veteran of the Spanish-American War; aged 65; died, Nov. 26, 1929, of heart disease.

GEORGE W. WHITFIELD, Chicago; Northwestern University Medical School, 1887; former chief surgeon for People's Gas Light and Coke Company; aged 69; died, December 30, 1929, of cerebral arteriosclerosis and diverticulitis of the bladder.

PAUL WILLIAM WIPPERMAN, New Orleans, La.; University of Minnesota Medical School, Minneapolis, 1913; a practitioner of Decatur, Ill., and superintendent of Decatur and Macon County hospital from 1923 to 1928, and of Truro Infirmary since; aged 41; died, January 2, of acute endocarditis in the latter institution.

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